National Library of Canada
Bibliothèque nationale du Canada

Canadian Theses Service
Service des thèses canadiennes

Ottawa, Canada
K1A 0N4

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

NL-339 (r. 88/04) c

Canada

UNIVERSITY OF ALBERTA

ASSESSING THE EFFECTIVENESS OF FAMILY SUPPORT PROGRAMS IN REDUCING THE RELAPSE RATES OF SCHIZOPHRENIA

BY

GERALD VAN OOSTEN

A THESIS
SUBMITTED TO
THE FACULTY OF GRADUATE STUDIES
AND RESEARCH
IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF SCIENCE

DEPARTMENT OF FAMILY STUDIES

EDMONTON, ALBERTA
SPRING, 1991

National Library of Canada
Bibliothèque nationale du Canada

Canadian Theses Service
Service des thèses canadiennes

Ottawa, Canada
K1A 0N4

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-315-66597-1

Canada

UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR: Gerald Van Oosten

TITLE OF THESIS: Assessing the Effectiveness of Family Support Programs in Reducing the Relapse Rates of Schizophrenia

DEGREE: Master of Science

YEAR THIS DEGREE GRANTED: 1991

PERMISSION IS HEREBY GRANTED TO THE UNIVERSITY OF ALBERTA LIBRARY TO REPRODUCE SINGLE COPIES OF THIS THESIS AND TO LEND OR SELL SUCH COPIES FOR PRIVATE, SCHOLARLY OR SCIENTIFIC RESEARCH PURPOSES ONLY.

THE AUTHOR RESERVES OTHER PUBLICATION RIGHTS, AND NEITHER THE THESIS NOR EXTENSIVE EXTRACTS FROM IT MAY BE PRINTED OR OTHERWISE REPRODUCED WITHOUT THE AUTHOR'S WRITTEN PERMISSION.

#104, 10219 - 114 Street
Edmonton, Alberta
T5K 1S1

Date: April, 1991

UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled:

ASSESSING THE EFFECTIVENESS OF FAMILY SUPPORT PROGRAMS IN REDUCING THE RELAPSE RATES OF SCHIZOPHRENIA

Submitted by GERALD VAN OOSTEN in partial fulfillment of the requirements for the degree of Master of Science.

Brenda C. Munro

Dr. Brenda Munro, Supervisor

Janet Fast

Dr. Janet Fast

Dr. Tom Maguire

Date: April 12, 1991

DEDICATION

I would like to dedicate this thesis
to my very own "family support group",
my wife Joyce DeWitt - Van Oosten.
Without her love and encouragement
the completion of this thesis would never have happened.

ABSTRACT

This study compared the effectiveness of two programs in reducing the relapse rates of schizophrenia. One was a family support program based upon family systems theory and the other was a routine individual treatment program based upon the medical model. There were two samples, unmatched and matched. The unmatched sample consisted of 73 schizophrenics residing with family members. Twenty four of those schizophrenics were involved in a family support program while the other forty nine received routine individual treatment. The matched sample consisted of 21 pairs of schizophrenics and their families from the above sample that were matched exactly on medication dosage and to within one year of chronicity.

The variables that were examined consisted of the number and length of relapses within a one year period of observation, and the medication compliance achieved by the schizophrenic. Descriptive statistics, pooled variance t-tests, and paired t-tests with dependent means were utilized to test for significance of the results.

Within both the unmatched and matched samples, the family support group had a lower relapse rate among schizophrenic family members than did those receiving routine individual treatment. Statistical significance was achieved with the unmatched sample but not with the matched sample likely due to its small size. Moreover, the schizophrenics of the family support group from both samples had fewer multiple relapses and spent less time in hospital than those who received routine individual treatment. These results were statistically significant. However, the routine individual treatment group from the

matched sample had fewer relapses requiring hospitalization, this was statistically significant. Statistical significance was not achieved for the comparison of medication compliance of the two samples. However, it was felt that better compliance was strongly indicated within the matched family support group but again, due to its small size statistical significance could not be achieved.

The implications of the above results were discussed and a model family support program was proposed. Questions arising out of this study were addressed as directions for future research.

ACKNOWLEDGEMENTS

Although credit for completing a thesis is usually given to the author, the reality is that the process involves the collective efforts of several people. With that thought in mind, I would like to take this opportunity to thank the following individuals for their support and contributions to this effort.

First and foremost I wish to thank the members of my committee: my advisor, Dr. Brenda Munro, for her constant enthusiasm, high academic standards and gentle manner; Dr. Janet Fast, for her open door, keen insights, calm assuredness and her willingness to read yet another draft. And finally, Dr. Tom Maguire, whose excellence as a statistician and an educator made the frightening world of statistics a good deal more hospitable.

I would also like to thank the staff at Alberta Mental Health in Edmonton, whose support and willingness to participate in this study made its successful completion possible. The cooperation and support of people too numerous to mention was obtained from this office. However, I would like to specifically thank Virginia Smith, Manger of Policy and Planning, whose belief in the importance of this research resulted in my acceptance within the department and thereby the successful collection of data. I would also like to acknowledge the contributions of the file room staff, Vera Barrow, Teresa Fuller, and Debbie Torkelson, who located and refiled literally hundreds of files for me in addition to their everyday duties and who did so professionally and cheerfully.

Last but not least, I would like to thank my parents, Albert and Ena Van Oosten, my brother Jeff, and my in-laws, Bill and Ditty DeWitt,

for their support and encouragement over the years (both emotional and financial). Knowing that all of you believed in me and were rooting for me meant a great deal.

TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION	1
	Research Question	4
II.	CONCEPTUAL FRAMEWORK	5
	Medical Model	5
	Limitations	7
	Family Systems Theory	8
	Family Systems Concepts and Applications	9
	System	10
	Boundary	10
	Input	10
	Output	11
	Open and Closed System	11
	Feedback	12
	Negative Feedback Loop	12
	Positive Feedback Loop	13
	First Order Change	13
	Second Order Change	14
	Limitations	15
	Summary	17
III.	LITERATURE REVIEW	18
	Medical Model Research	19
	Epidemiology	19
	Neuropathology	21

Genetics....22
Neurochemistry....23
Pharmocology....24
Choice of an Antipsychotic Drug....26
Dosing Strategy....26
Medication Compliance....27
Rehabilitation....27
Social Skills Training....28
Problem-Solving Social Skills Training....29
Personal Grooming Training....29
Vocational Rehabilitation....30
Summary....30
Family Stystems Research....31
Historical Background....31
Phase I (early 1950's to late 1960's)....32
Phase II (late 1960's to late 1970's)....34
Phase III (late 1970's to the present)....35
Review of Family Support Programs....37
A. Crisis Oriented Family Therapy....38
B. Education, Support Group and Family Therapy....39
C. Behavioral Problem-Solving Family Management....41
D. Family Psychoeducation and Survival Skills....42
Discussion of Common Features....43
Connecting....43
Reframing....44
Focus on Current Transactions....44
Focus on Concrete Problem Solving....44

Psychoeducation....45
Limitations of Reviewed Studies....45
Research Questions....47
Research Question 1....47
Research Question 2....47
Research Question 3....47
Research Question 4....48
Research Question 5....48
Research Question 6....48
Summary....48

IV. METHODS....50
Operational Definitions....51
Relapse....51
Antipsychotic Medications....51
Medication Level....51
Medication Compliance....52
Chronicity of Disease....53
Family....53
Family Support Program....54
Individual Treatment Program....54
Sample Selection....54
Data Collection....56
Data Analysis....58
Research Strengths and Limitations....59
Strengths....59
Limitations....61

V. RESULTS....63
Samples....63
Unmatched Sample....63
Matched Sample....64
Results of Tests of Hypotheses....65
Research Question 1....65
Research Question 2....66
Research Question 3....68
Research Question 4....70
Research Question 5....71
Research Question 6....71
Summary....73

VI. DISCUSSION....74
Research Question 1....74
Medication Dosage....75
Chronicity....76
Research Question 2....76
Research Question 3....77
Research Question 4....78
Research Question 5....79
Research Question 6....79
Practical Application and Directions for the Future....80
Model Family Support Program....82
Difficulties Encountered by Family Support Programs..82
Practical Application....86
Future Research....90

Summary.....93

REFERENCES.....95

LIST OF TABLES

Table	Description	Page
1.	Relapse Rates of Previous Studies	40
2.	Description of Unmatched and Matched Samples on Age, Chronicity, Family Size, and Medication Dosage	64
3.	Relapse Rates of This Study	68
4.	Average Medication Dosage of Unmatched and Matched Sample	68
5.	Average Chronicity in Years of Unmatched and Matched Sample	68
6.	Description of Relapses of Unmatched and Matched Sample	70
7.	Medication Compliance of the Matched Sample	72
8.	Description of the Advantages and Disadvantages of Different Family Support Models	82

CHAPTER I
INTRODUCTION

This study proposes to address the question of how effective a family support program (based upon family systems theory) is in reducing the relapse rates of schizophrenia as compared to a routine individual treatment program (based on the medical model).

Schizophrenia is a complex brain disease affecting 1% of all people (Hatfield, 1978). It has a profound impact upon those afflicted, causing a disorder in thinking, feeling, and relating to others. Currently there is no conclusive evidence to substantiate a claim for any specific, identifiable cause of schizophrenia (McGill and Lee, 1986). The general view is that there are many possible and varied causes, most likely involving both physical and psychological factors (Miller and Keane, 1978; Steinglass, 1987).

As a disease, schizophrenia has generally been dealt with according to the medical model of treatment. An essential aspect of the medical model in regards to this disease, is the belief that a person can be changed if he/she were removed from his/her social situation and treated individually in a private office or a hospital (Haley, 1971). Once changed, he/she would be returned to his/her social milieu a "transformed" individual. Historically, this attitude had been reflected in the long-term institutionalization of the schizophrenic as the treatment of choice (Hatfield, 1978).

However, the advent and widespread use of antipsychotic medication in the late 1950's has led to the increasing deinstitutionalization of patients (Smith and Birchwood, 1987; Strachan,

1986). Since that time, antipsychotic medications have become an integral part of the treatment for schizophrenia. This form of treatment generally deals with the schizophrenic only and primarily consists of chemotherapy coupled with living skills instruction and/or behavior management. The medications act to reduce symptoms such as hallucinations, anger and paranoia thereby influencing (rather than curing) the disease process as does the use of insulin in the treatment of diabetes (Miller and Keane, 1978). This reduction in symptomology through the use of antipsychotic medications has in fact strengthened the notion of the effectiveness of individual-based treatment within the bounds of the medical model (Falloon, 1986; Goldstein, 1986).

Although re-establishing these patients exhibiting reduced symptoms within their families appears to be a logical step in the deinstitution movement, a problem arises in that these antipsychotic medications are not completely effective (Doll, 1976). Several studies have shown that non-compliance is high, with over one third of day patients and 40-65% of outpatients discontinuing regular medications within 6 weeks (American Psychiatric Association, 1989; Johnson, 1989; Tarrier et al, 1988). In fact, even with complete compliance they have a relapse rate of about 35-50% within a two year period (Liberman et al, 1980; Miller et al, 1986). Relapse is defined as the return of the florid symptoms (anger, withdrawal, paranoia, hallucinations) of schizophrenia that last for at least one week or require a major change in management of the disease (hospital admission or an increase in medication dosage).

In addition, the lack of community based medical and social services has placed the burden of care for the schizophrenic squarely

on the patient's family, frequently in the absence of sufficient information, skills and support (Carstairs et al, 1985; Goldstein, 1986; Hatfield, 1978). Studies show that families of schizophrenics who must learn to live with unpredictable, aggressive, socially embarrassing behavior, social withdrawal, inactivity, and excessive sleeping experience moderate to severe stress and unhappiness (Hatfield, 1978; Herz, Endicott, and Gibbon,1976; Kriesman, Simmens, and Joy, 1979; Lamb and Oliphant, 1978).

Because of the distortions in stimuli processing inherent in the disease, any stress, upset, or turmoil within the family environment can lead to an increase in symptoms and a decrease in level of functioning for the patient (Leff et al, 1985). In fact, a growing body of evidence now indicates that the affective style of the family can direct the course of the disease including the probability of relapse of florid symptoms (Falloon and Pederson, 1985; Liberman et al, 1985; Steinglass, 1987). Evidence from several other clinical studies support the notion that familial affective style is a good predictor of relapse but at the same time suggest that levels of family criticism and hostility directed at the schizophrenic are positively associated with the amount of stress and burden experienced by the family in caring for the ill member (Falloon et al, 1985; MacCarthy et al, 1986; Mintz et al, 1987; Smith and Birchwood, 1987; Strachan et al, 1986). These findings demonstrate the reciprocal effect that the patient and family have upon each other and so contradict the belief of adherents to the medical model that one need work only with the schizophrenic.

Thus, it is reasoned that a more effective treatment for schizophrenia is one that works with the entire family (Falloon and

Pederson, 1985; Goldstein, 1986; Hogarty et al, 1986). This notion of working with the family as a whole to influence change in an individual is strongly rooted in the practice and theory of family therapy (Phares, 1984). The focus of family therapy is not on changing an individual's perception, his/her affect, or his/her behavior, but on changing the interrelational patterns between family members and the sequence of behavior among a group of intimates (Haley, 1971).

These principles of family therapy often are based upon the principles of family systems theory which views the family as an integrated, interrelated whole. Consequently the emphasis is not upon the disease or malfunction of an individual (as with the medical model) but upon the interrelatedness of all family members and the reciprocal effect that they have upon each other (Galvin and Brommel, 1986).

Research Question

In light of the evidence linking high levels of family stress which can be manifested as hostility and criticism toward the schizophrenic, with the relapse of schizophrenic symptoms, the question arises as to which approach, the medical model or one based upon family systems theory is more effective in reducing the relapse rates of schizophrenia? The two frameworks compared in this study, family systems theory and the medical model will be discussed in the following chapter.

CHAPTER II

CONCEPTUAL FRAMEWORK

This discussion will compare and contrast the traditional medical model and family systems theory as frameworks for the treatment of schizophrenia.

The Medical Model

The prevailing or dominant view of the pathology of schizophrenia still revolves around the medical model. To oversimplify, this model suggests that the patient has some disease that is producing symptoms that are personally troubling or are disturbing to others (Phares, 1984). The essence of this approach lies in the classification and treatment of the individual. Through systematic observation of patients' behavior and course of illness, one can abstract the similarities among patients and classify them accordingly. Once this is done, the search for causative agents can proceed (Phares, 1984).

According to the medical model, abnormal behaviors are thought of as symptoms. If there are symptoms, then it is believed that there must be an underlying pathology or disease process that is responsible for the manifestation of those symptoms (Miller and Keane, 1978). Since the disease lies within the individual and the individual is the unit of treatment it follows that there is little or no need to deal with a patient's family or social environment. A prime example of this type of thinking occurs in a recent publication on the treatment for schizophrenia (Morrison and Wixted, 1989). Within a chapter dealing with social skills training the authors state: "...the interactional pattern of families of schizophrenics is frequently deviant and may provide

additional stress, which the patient lacks the appropriate interpersonal skills to resolve" (p.237). These authors then go on to explain that family relationships that are particularly hostile or critical place the schizophrenic at an increased risk of relapse. However, there is no examination as to why those family relationships are hostile, no examination as to the effect of the schizophrenic symptoms upon the family members, no apparent belief in the reciprocity of such relationships. Rather, what comes across is yet another attempt to label the family as deviant and causal to relapse.

As was noted above, this is a simplification of the medical model. The problem is not so much that the psychiatric profession as a whole does not accept the fact that the psychosocial environment of the family can affect relapse rates. One needs only to refer to the American Psychiatric Association's authoritative text; Treatments of Psychiatric Disorders to discover the acknowledgement that working with the family is an effective and recommended treatment modality. Rather the problem seems to be a resistance on behalf of the profession to make such programs widespread and routine. The reasons for this resistance are not clear and are puzzling given the acknowledgement of the successes of studies of family support programs. In spite of the recognition of the effects of the family environment, the routine treatment for schizophrenia is still almost completely individual-centered. Indeed, within the city of Edmonton at this time, there is only one organized program with very limited space that will work with the family in reducing schizophrenic relapse rates. Moreover, one of the largest institutions in the province, Alberta Hospital Edmonton has no family support program for the families of schizophrenics.

Limitations

Strict adherence to the biological component of the medical model has several aspects which can run counter to the beliefs of a family systems theorist. First, the model encourages biological rather than social or psychological views of schizophrenia. As such, proponents of this model see little value in working with the family of the schizophrenic. This is reflected in the preponderance of treatment modalities for schizophrenics which are individual-centered. In addition, the model can lead to an overemphasis on psychiatric diagnoses and encourage a labelling and even stigmatizing process that is usually unproductive. Finally, this model has a tendency to focus attention on the pathologies and weaknesses of patients. It can easily obscure the presence of skills and latent coping abilities that exist in the patient and his/her family. In short, an undue emphasis is placed on the negative (Korchin, 1976).

An examination of the routine individual centered treatment for schizophrenia reveals that it generally consists of the following components: chemotherapy as the primary focus and rehabilitation programs if available. Rehabilitation is geared towards the development or re-learning of social skills that the symptoms of schizophrenia have effected. Yet a further examination of the successes of this framework reveals that chemotherapy, as the primary treatment for schizophrenia, has a relapse rate of from 35% to 50% or more within a two year period following onset depending upon the population studied (American Psychiatric Association, 1989; Bebbington and McGuffin, 1989; Hahlweg et al.,1989).

Family Systems Theory

Family systems theory has developed out of general systems theory and provides a unique perspective from which to decipher human relationships and behaviors (Broderick and Smith, 1979; von Bertalanffy, 1981). Essentially, it is a theoretical framework that attempts to explain how individuals and families function in terms of circular, nonlinear interrelatedness, rather than in terms of causality(Crouch and Roberts, 1987).

This notion of interrelatedness within the family is central to family systems theory. A useful analogy is one used by Satir (1972) who thought of the family as a mobile: as events touch one member of the family, other members reverberate in relationship to the change in the affected member. Thus, family systems theory holds that any attempts to produce change in one member will fail unless the interrelatedness of the family as a system is recognized and dealt with (Galvin and Brommel, 1986).

Moreover, this concept of interrelatedness disqualifies any belief in linear causality. According to family systems theory, to say that A caused B's behavior is in effect to say, first, that B does not have a free will to act as he/she chooses and second, that B has no reciprocal effect upon A, that the flow of the relationship is one-way only (Montgomery and Fewer, 1988).

For example, it was a popular belief among psychiatrists in the 1950's that dysfunctional families in general and 'schizophrenogenic' mothers specifically were to blame for the onset of schizophrenia. Radical interventions were developed which worked intensively with

such families to uncover the underlying deviance within their relationships that was causal to the disease. Once these conflicts and deviances were uncovered the schizophrenic would effectively be cured. However, these interventions failed miserably and psychiatry in large part turned its back on the family as a vehicle for treatment. It was the development of family systems theory in the late 1960's and early 1970's that led to a re-examination of the role of the family in the course of the disease. Latter day family theorists working from the notion of interrelatedness and not causality were able to demonstrate that schizophrenic symptoms and family stress levels were involved in a complicated symbiotic relationship wherein each influenced the other in a reciprocal escalating spiral with the end result being schizophrenic relapse(Steinglass, 1987, Thomas, 1979).

Therefore, family systems theory supports the notion of a cycle of schizophrenic's bizarre behavior--family stress as outlined above. One part of the cycle does not cause the other to occur but rather, both parts of the cycle (schizophrenic's behavior and family's response) affect each other.

Family Systems Concepts and Application

There are several important concepts which will be defined and then applied in examples to allow for a full understanding of the mechanisms of family systems theory. These concepts will not be measured as part of the study results but are provided only for clarification. They are: system, boundary, input, output, open and closed systems, feedback, negative and positive feedback loops, first order change, and second order change.

System

A system is a collection of interrelated components and the existing relationships between those components (Montgomery and Fewer, 1988). Thus the family system is composed of individual subsystems, and in turn, family systems form higher order systems such as societies.

Boundary

The rules that govern who participates in a system and what that system does form the system's boundaries (Crouch and Roberts, 1986). Major difficulties faced by family members are adjusting to and accepting the radical change in the schizophrenic's personality (Hatfield, 1978). This personality change can have an impact upon the family's concept of boundary in two ways. First, a lengthy hospitalization period may may make it difficult for family members to relate to the ill member as still being within the system's boundaries. Second, the radical change in personality and mannerisms, even following hospital release, may make it difficult for family members to relate to the ill member as who he/she once was. Thus family members may experience confusion as to the inclusion of the ill member with the system's boundaries.

Input

Input is defined as a stimulus (information) from the external environment which is received into the system (Broderick and Smith, 1979). The initial diagnosis of schizophrenia is an external stimulus that

impacts upon the family system. For example, once schizophrenia has been diagnosed, the family system is required to deal with new types of input. Family members must deal extensively with the medical profession and its terminology. Other issues also surface such as social stigma about mental illness, and the family members' own fears about and lack of knowledge regarding the disease. Moreover, the ill member contributes his/her own input into the family system. More often than not, this input involves nonsensical talk, hallucinations, paranoia, and mood changes inappropriate to the reality of the situation. Therefore, the family system is forced to try to deal with strange and confusing input not only from the external environment but also from within. This tends to keep the family members continually on guard and in a state of great tension (Hatfield, 1978).

Output

Output is the response of the system back to the environment (Broderick and Smith, 1979). The type of response (output) that the family implements to deal with this new and confusing input will, in large part, be determined by the degree of openness within the family system and the type of feedback loops that are utilized. Recognition by family members of their inability to cope with increased levels of stress and their subsequent appeal for assistance from health professionals would be an example of output in this context.

Open and Closed Systems

A system can be classified on a continuum from open to closed based upon the permeability of its boundaries (Broderick and Smith,

1979). The degree of openness refers to the system's ability and willingness to exchange information with the external environment. The more able and willing a system is to interact with the external environment, the more open it is considered to be. Conversely, a closed system exchanges little information with the external environment (Montgomery and Fewer, 1988). An open system tends to be more adaptable due to its willingness to seek and accept help from external sources. A closed system tends toward a state of equilibrium wherein the system remains constant over time and adaptation is minimized (von Bertalanffy, 1981). For example, a family system that is relatively closed may try to deal with the demands of care giving for the ill member without external assistance.

Feedback

Feedback is information about a system's performance which comes to the system both from within and from the external environment (Montgomery and Fewer, 1988). Internal feedback could be expressions of frustration by family members to one another about the schizophrenic member. External feedback could be assurances from health professionals that family coping strategies are appropriate and effective.

Negative Feedback Loop

A negative feedback loop is a way of handling deviation within a system so that the deviation is minimized and the organization of the system is not affected (Montgomery and Fewer, 1988). A negative feedback loop would tend to be utilized by relatively closed family

systems, often in an attempt to maintain the status quo. That is, family members may attempt to relate to the ill member as he/she used to be, thereby placing unrealistic expectations upon him/her to fulfill their earlier responsibilities within the family and community.

It is likely that such a family system would place an undue emphasis upon output that gives no hint of difficulties within the system. The situation may be viewed as a problem to be dealt with within the boundaries of the system. However, given the cycle of bizarre behavior--family stress, what may eventually occur is second order change (see definition below) as the family system breaks apart under this unrelenting stress.

Positive Feedback Loop

A positive feedback loop is a way of handling deviation in a system such that the deviation is amplified rather than negated and the amplification tends toward organizational change (Montgomery and Fewer, 1988). Positive feedback loops are more likely to be utilized by relatively open family systems as a method of instituting controlled change and adaptation. For example, a relatively open family whose members realize that they are unable to cope with the demands of care giving seek help from external sources. Thus, there would be a change in the organization of the family (who does what) but not in the structure.

First Order Change

These are changes in interaction patterns at the structural level of the system that allow it to maintain stability. The structure of a family is

simply the arrangement of roles and who fulfills those roles within the family. First Order Continuous Change results in new patterns that are extensions of older patterns. The family that acknowledges the inability of the schizophrenic to participate as he/she once did while at the same time demanding that other family members continue on in their roles as if nothing is different is demonstrating First Order Continuous Change. Obviously subtle changes or shifts in roles and patterns of interactions must occur but they are not acknowledged openly thereby maintaining an illusion of no change and stability. First Order Discontinuous Change results in new patterns that are in fact new and unrelated to the older patterns but still "fit" with significant elements of the system's structure (Montgomery and Fewer, 1988).

A relatively open family system may initially experience the same degree of stress as a closed system but is more likely to be adaptable in dealing with that stress through the use of positive feedback loops. For example, family members who realize that they are unable to deal with the demands of care giving for the ill member would be more willing to seek outside assistance. In addition, they are more likely to realize that roles within the family must be altered somewhat so as to accommodate the inability of the ill member to fulfill family responsibilities. This accommodation, or shifting of roles and attitudes, is an example of a positive feedback loop wherein the organization of the family has changed while maintaining the overall structure. Thus we have first order discontinuous change.

Second Order Change

This is change to the system's organization of such a degree that

the system ceases to exist and a new system with a different membership and patterns is created (Montgomery and Fewer, 1988). For example, the long-term institutionalization of the schizophrenic member or dissolution of the family by members leaving home due to the stress of care giving is second order change.

Limitations

It should be noted that although the application of family systems theory to the treatment of schizophrenia can be an effective tool, there are limitations. The main problem is the reluctance of some families to engage in a program of support and training. Three reasons for this reluctance have been highlighted in the literature. First, some families feel threatened by the availability of a specialized service for them and construe offers of help as 'treatment' with the implication that the family is a problem or has failed (Smith and Birchwood, 1990). Second, a significant proportion of families refusing help are relatives of first-admission patients (Kuipers and Bebbington, 1985). Some deny the presence of a mental illness, some regard it as an isolated incident while in others, distress and frustration are translated into anger towards the professionals involved (Smith and Birchwood, 1990). Third, many families simply do not accept or understand the rationale of family interventions (Smith and Birchwood, 1990).

In other words, family support programs tend to attract relatively open families. Because closed families are less likely to seek out and participate in these programs it is important that steps be taken to provide them repeatedly with information as to their purpose and success.

The foregoing discussion has focussed on the application of family systems theory concepts to the cycle of bizarre behavior--family stress. What follows is a discussion of how family systems theory can be applied in the treatment of schizophrenia to effectively reduce relapse rates.

The application of family systems theory to the treatment of schizophrenia does not call for a rejection of the medical model but rather for a partnership to be formed by these two frameworks. It is now widely recognized that schizophrenia likely has a biological basis (perhaps genetic) which can be affected by psychosocial factors and that neuroleptic medications form the integral component of the current treatment of this disease (Davis, 1987; Falloon, 1986). However, family systems theorists believe that an approach based solely upon the biological components of the medical model does nothing to reduce the levels of family stress which interact with schizophrenic symptomology to affect relapse. Rather, what is called for is an approach utilizing the routine treatments for schizophrenia in conjunction with a broadly based family support program. Such a support program would provide family members with education about all aspects of the disease, it would assist family members in dealing with the emotions and stress within the family, and it would assist them in developing new interactional patterns to compensate for the radical personality changes of the schizophrenic.

In summary, what a family support program would attempt to accomplish is to work with families experiencing increased stress as a result of shifting boundaries, strange and confusing input, and attempts to maintain the status quo through the implementation of negative feedback loops. Moreover, this support would have to occur before

those stresses become too great for family members and result in second order change. Especially susceptible are relatively closed and rigid families however the problems associated with this disease are so great and have such an all encompassing impact that even relatively open families will likely find themselves at risk of a radical second order change.

Summary

There can be no denying that schizophrenia likely has its basis in biological factors. However, the exacerbation of symptoms by the psychosocial environment also clearly is a factor in this disease. Given the fact that neuroleptic medications are not completely effective in eliminating schizophrenic relapse, it is argued that a treatment modality that combines family systems theory and aspects of the medical model in a family support program should be examined to determine its effectiveness as compared to routine individual treatment.

CHAPTER III

LITERATURE REVIEW

Schizophrenia has been described as the heartland of psychiatry (Mackay, 1988). This description is due as much to its enigmatic nature as a disease as by its fearful toll of morbidity. Fully 1% of all Canadians are at risk of being diagnosed at some time as being schizophrenic, a number that is highly significant given that only about 7.5% of all Canadians are at risk of developing any of the mental illnesses (Schizophrenia Society of Alberta, 1990). Its economic cost to society has been estimated to be about one and a half times that of myocardial infarction (Andrews et al, 1985, Mackay, 1988).

Schizophrenic illness has been the subject of clinical and biological research for several decades yet the exact cause or causes of this disease remain unknown (Smith and Birchwood, 1990). A review of the PsycLit data base of the American Psychiatric Association for the period of 1/1983 to 9/1990 reveals an astonishing 8593 research papers published under the search term of schizophrenia. A review of the literature for this topic would prove to be a daunting task indeed. However, an analysis of research trends provides a clear indication of the directions of schizophrenic treatment.

This analysis indicates that research on schizophrenia can be grouped into seven main areas of interest: epidemiology, neuropathology, genetics, neurochemistry, pharmacology, rehabilitation, and lastly family support. The first six research areas would fall under the umbrella of the medical model due to their focus on symptomology or their individual-centeredness. The last topic is family systems orientated and yet it too originally developed from the medical

model. This review will briefly highlight the major findings in each of the above areas. It will trace the evolution of family support out of the medical model to a family systems based concept, and it will discuss the resulting future implications.

Medical Model Research

Epidemiology

The majority of the epidemiological studies have focused on variations in the occurrence of schizophrenia by age, sex, race, social class, geographic and cultural history (Jablensky, 1988). The largest and farthest reaching studies of epidemiology have been those conducted by the World Health Organization (WHO) over the last 21 years in 17 countries.(Johnstone et al, 1990). The WHO program has succeeded in building up a unique data base comprised of over 3000 clinically and socially documented cases of schizophrenia in different cultures.

The main findings from the WHO data base, and from several other studies, are that the syndrome of schizophrenia is universal, it has been found in every culture in every part of the world that has been studied. (Torrey,1987; Jablensky, 1988). The incidence rate of approximately 1% is fairly consistent in most cultures (Jablensky, 1988; Torrey, 1987). There is a characteristic gender effect on the age-specific incidence rate of schizophrenia (Jablensky, 1988). While the total cumulative risk of being diagnosed with schizophrenia is about equal for men and women up to the age of 54, the mean age of onset in individuals age 15 to 34 is higher for women than for men (Jablensky, 1988; Torrey, 1987; McGue and Gottesman, 1989). The

epidemiological evidence points to a significant genetic component in the transmission of schizophrenia (Barrett, 1989; Jablensky, 1988). This area of epidemiology has generated such a high degree of investigation that it often is considered a research area unto itself. Research pertaining to the genetics of the disease will be further discussed below.

Two major subtypes within the schizophrenia syndrome have been identified. These are schizophrenia with acute onset, and schizophrenia with gradual onset (American Psychiatric Association, 1989; Jablensky, 1988). Schizophrenic illness worldwide has a strong tendency to respond therapeutically to drugs interfering with dopamine neurotransmission (Torrey, 1987, Falloon and Pederson, 1985; Davison and Neale, 1986).

The prognosis and outcome of schizophrenia do vary considerably. For example, it has been demonstrated that schizophrenics who reside within families exhibiting a high degree of stress and conflict are at a much greater risk of relapse than those whose families have lower levels of stress and conflict. Another interesting finding is that schizophrenic patients in developing countries having a higher percentage of good outcomes (Torrey, 1987). There has been speculation that this results from lower levels of family stress due to the assistance of extended family members in the care giving for the schizophrenic member (Falloon, 1985).

There is a consistent seasonality effect on the distribution of births of persons who subsequently develop schizophrenia (Jablensky, 1988). It has now been shown in every northern hemisphere country that has been studied that a disproportionate number of individuals who

were born in the late winter and early spring months later develop schizophrenia.(Torrey, 1987). However this is common to other disorders such as diabetes mellitus, anencephaly and Down's syndrome. It is unlikely therefore that this particular finding will be of cardinal importance in understanding the exact nature of this disease (Jablensky, 1988).

Clearly the disease of schizophrenia has been the subject of exhaustive epidemiological study. While researchers believe that they now know who is at increased risk for contacting the disease, they still are unable to say why.

Neuropathology

The search to find underlying structural abnormalities that may contribute to the development of schizophrenia has so far been rather frustrating and disappointing (Lantos, 1988). However the last few decades has witnessed increased interest in this area and a progress in the methods available to neuropathologists.

Neuropathological technology has provided a number of interesting preliminary results. For example, findings of larger ventricles in the temporal lobes of schizophrenics, decreased metabolic activity in the frontal lobes and other abnormalities have served to dramatically increase research interest in this area (Lantos, 1988). Moreover, computed tomographic scan studies have unequivocally established that schizophrenia is associated with cerebral atrophy (Deakin, 1988). But the key area of debate is whether the atrophy is the result of a variety of non-specific perinatal insults to the brain or

represents more specific developmental abnormalities. At this point in time there still is no consensus as to the structural basis of the disease.

Genetics

It would at first seem natural that genetics should be a research area of keen interest in determining the causes of schizophrenia, yet until recently that has not been the case. Early family aggregation studies which tried to demonstrate that schizophrenia was more prevalent among family members than among the general population came under heavy criticism as to the genetic and psychosocial theories which they proposed concerning etiology of schizophrenia (Schulz and Pato, 1989). However, two recent events have greatly influenced genetic research associated with this disease.

The first was the technological development of molecular genetic techniques throughout the late 1970's and 1980's. For most schizophrenic researchers an exciting event was the linkage of chromosome 4 to Huntington's disease in 1983 because it demonstrated the power of that new molecular genetic technology (Schulz and Pato, 1989).

Perhaps the greatest single event to impact upon genetic research into schizophrenia has been the linkage by Canadian researchers in 1988 of chromosome 5 with schizophrenia in a small Vancouver family (Bassett et al, 1988; Jones, 1990; Schulz and Pato, 1989). This discovery has spurred a renewed interest in genetic research with the result that it is now one of the fastest growing research fields.

Nonetheless the gene for schizophrenia has not been located and is not likely to be for some time yet (Schulz and Pato, 1989). Once a gene is isolated it is in reality only the first step in determining its exact effect with prevention or cure even farther off (Gurling et al., 1989; McGuffin, 1988; Schulz and Pato, 1989).

Neurochemistry

As might be expected the two research areas of neurochemistry and neuropathology are closely related. Recent technical advances in this area as with neuropathology have provided and increased impetus to research. Perhaps the most beneficial advance has been the development of Positron Emission Tomography (PET). This technique allows the researcher to literally see into the brain of the subject (with the use of computer simulated 3-D graphics), something that could only be accomplished postmortem in the past.

However, PET does not yet provide the anatomical resolution nor the range of neurochemical parameters that can be achieved by studies of the postmortem brain (Deakin, 1988). As a result the two techniques are complementary.

The major finding of neurochemistry has been the discovery of an increase of dopamine (an intermediate product in the synthesis of neurotransmitters) D2 receptors in schizophrenic postmortem brains (Deakin, 1988; Miller and Keane, 1978). However, it remains unclear whether this increase in receptors is due to an adaptive response to neuroleptic medications or is a part of the disease process (Deakin, 1988). Some studies have indicated that the increase in receptors is present in drug-free patients but these have not yet been confirmed

(Mackay et al, 1980; Cross et al, 1981). It is hoped that a definitive answer will be provided by imaging studies that allow for the examination of newly diagnosed schizophrenics before drug therapy and without having to wait for postmortem.study (Deakin, 1988; Seeman and Seeman, 1988). The answer is likely to have consequences for the possible causes and treatment of this disease.

Pharmocology

The advent of antipsychotic medications (a term now used interchangeably with neuroleptic medications) in the mid 1950's has dramatically altered the treatment for schizophrenia (Bebbington, 1988; Stahl and Wets, 1988). The accepted use of these medications has in fact led to the widespread deinstitutionalization of patients (Hatfield, 1978; Phares, 1984; Reiss, 1988). However as was noted earlier, these medications act to control symptoms and do not cure (Stahl and Wets, 1988). Moreover, these medications are not completely effective in preventing relapse. There is a relapse rate of about 35-55% with full medication compliance within a two year period depending upon the schizophrenic population studied (American Psychiatric Association, 1989; Bebbington and McGuffin, 1989).

An important consideration for pharmocotherapy is that schizophrenic patients may present three different types of psychopathology (American Psychiatric Association, 1989). These are the positive symptoms (hallucinations and delusions), the negative symptoms (apathy, loss of drive, reduced speech) and disturbances in general functioning such as loss of vocation and social inappropriateness (American Psychiatric Association, 1989).

Pharmocotherapy is most effective in the reduction of positive symptoms, less so in reducing the negative symptoms of chronic patients, and not effective at all against the disturbances in general functioning except to the extent that these result from drug sensitive symptoms (Stahl and Wets, 1988).

While all neuroleptics interact with the dopamine system, most also act to block other neurotransmitters as well. This explains many of the undesirable side-effects of neuroleptics such as dry mouth, constipation, sedation, and various cardiovascular disturbances (Stahl and Wets, 1988).

The most troublesome and serious of the side-effects are those referred to as extrapyramidal side-effects (EPRS). These are related to neurological impairment, the most serious of which is tardive dyskinesia. Tardive dyskinesia is characterized by stereotyped involuntary, rapid, jerky movements. This disorder usually becomes apparent after two to five years of drug treatment, may worsen when the drug is withdrawn, and usually is considered to be irreversible (Phares, 1984, Stahl and Wets, 1988). The patient has a 70-80 percent risk of a psychotic relapse within a year without maintenance pharmocotherapy versus a 25-35 percent risk of relapse within a year combine with a 15-25 percent risk of tardive dyskinesia after about one year of pharmacological treatment (American Psychiatric Association, 1989).

Thus, the main thrust of research in the area of pharmacology is the discovery of antipsychotics with fewer extrapyramidal effects and with a higher selectivity for the dopamine systems without effecting other neurotransmitter systems (Stahl and Wets, 1988).

Due to the primary importance of antipsychotic medications in the treatment of schizophrenia, a brief discussion of medication choice and dosing strategy will follow so as to provide the reader with a better understanding of these issues.

Choice of an Antipsychotic Drug

The effectiveness of all antipsychotic drugs available in North America today is identical for all practical purposes (American Psychiatric Association, 1989). Therefore, the main considerations in choice for the clinician become familiarity with the drug, its side effects, route of administration (oral or intramuscular), and cost to the patient (the entire costs of these medications in Canada is borne by provincial health plans)(American Psychiatric Association, 1989; Kane, 1984; Stahl and Wets, 1988).

Dosing Strategy

Therapeutic goals are described in terms of four principal indications for neuroleptic treatment:

1. Symptomatic management and control of pathological excitement.
2. Treatment of acute psychotic disorders.
3. Treatment of chronic schizophrenic conditions.
4. Maintenance treatment of schizophrenic patients in remission (American Psychiatric Association, pp 1505,1989).

After the patient has achieved the maximum improvement possible, the goal is to maintain the same quality of remission with the lowest possible doses of antipsychotic drug (Kane, 1984). The

assumption cannot be made that because symptoms are controlled with a given dosage that doubling the dose will work twice as well. Due to the dangers of side effects (especially the extrapyramidal effects) it is vital that the patient be maintained on the lowest dose possible (American Psychiatric Association, 1989).

Medication Compliance

The literature clearly indicates that medication affects relapse rates more than any other variable (American Psychiatric Association, 1989). However, the literature also indicates that mediation non-compliance is a great problem in the treatment of schizophrenia (Johnson, 1989). Several studies have shown that non-compliance is high, with over one third of day patients and 40 -65% of outpatients discontinuing regular medications within 6 weeks (American Psychiatric Association, 1989; Johnson, 1989; Tarrier et al, 1988). Given the fact that schizophrenics who discontinue their medications have a 70-80% relapse rate within nine months, a successful treatment program would be one that could ensure medication compliance.

Rehabilitation

This area of research is one that has developed only within the last two to three decades. The focus of rehabilitation is not upon relapse prevention but on the development of social skills. The need for effective rehabilitation programs has sprung out of the realization that the antipsychotic medications generally do not effect the negative symptoms of schizophrenia (withdrawal, apathy, poor self-care etc.) (Stahl and Wets, 1988). Due to symptomology and the effects of long-

term institutionalization most schizophrenics need to learn or relearn social and personal skills for survival in the community (American Psychiatric Association, 1989).

Behavioral procedures are the mainstay of the rehabilitation field for schizophrenia (Liberman, 1976; Wong et al. 1986). Treatment entails "alteration of antecedent and consequent stimuli surrounding the problem areas to supplant and suppress psychotic behaviors and to teach and strengthen adaptive skills" (American Psychiatric Association, pp. 1569, 1989). Moreover, these behavioral procedures are thought to have the following benefits. They buffer the impact of stressors through modifications to the environment while establishing and strengthening the patient's social support network throughout his/her participation in activities such as job club. They also weaken or interrupt psychotic symptoms and bizarre behavior by changing their environmental antecedents and consequences. In addition, they develop and strengthen the patient's personal assets and competencies while interacting with pharmocotherapy to yield better results (American Psychiatric Association, 1989). Research in this area can be grouped into four main topics: social skills training, problem-solving social skills training, personal grooming training, vocational rehabilitation (American Psychiatric Association, 1989, Phares, 1984).

Social Skills Training

Social skills training focuses on the learning of specific interpersonal skills and the maintenance and generalization of these skills. Topics of research include assertive responses (Eisler et al., 1978), nonverbal behaviors such as eye contact and smiles (Kolko et al,

1981), and conversational skills (Urey et al, 1979). This area of training tends to be quite popular amongst therapists, yet patients have shown little improvement and the generalizability and durability of treatment gains may be limited (Liberman et al., 1984).

Problem-Solving Social Skills Training

Research and treatment in this area has focused on three main skills: receiving skills, processing skills, and sending skills (American Psychiatric Association, 1989; Phares, 1984). Typical problem areas that would be dealt with include learning the various transportation routes to attend a medication clinic, how to open a bank account and to devise a budget and how to search for a suitable apartment. At this point in time the literature provides no clear indication of the success of this rehabilitation area.

Personal Grooming Training

For chronic schizophrenics, long hospitalization periods and psychotic symptoms are generally associated with a loss of prior functioning and social isolation (Phares, 1984). This area of research and treatment is generally concerned with the use of verbal and physical prompts and modeling techniques as an effort to reduce social isolation. In a 1987 study by Wong et al. fifteen 15-minute training sessions led to a 72 percent increase over pretraining levels in the grooming criteria met by four chronic schizophrenics. In a wardwide study, there was a 63 percent posttraining improvement in appearance as measured by staff ratings of 11 factors (Wong et al., 1987).

Vocational Rehabilitation

Research and treatment in this area has centered on two main rehabilitation techniques; transitional employment and job club (American Psychiatric Association, 1989). Transitional employment opportunities are those within the community that are supervised by vocational rehabilitation workers. Transitional employment offers the participant an opportunity to develop job skills in the community while still having access to rehabilitation staff and support at any time. Studies of this approach compared to a slower, volunteer oriented approach indicate that employment rates for people with transitional experience are almost double those utilizing the more gradual approach (Bond et al., 1984).

Job club programs provide the participant with training in job seeking skills, and with follow-up and job maintenance activities. While the program has no time limit, studies show that participants spend an average of 23 days in the club before obtaining employment (American Psychiatric Association, 1989). For successful participation, schizophrenics must be in remission prior to entry and must have held a job within two years of joining the club. Recent evaluative studies of Job Clubs indicate that participants who are receiving guaranteed disability benefits, who have persisting psychotic symptoms and who have not worked within the past two years are unlikely to find employment through this program (American Psychiatric Association, 1989).

Summary

This brief review of medical research trends has highlighted

some of the major areas of interest. As can be seen from this review, the bulk of research dealing with the disease of schizophrenia is focused on determining the causes of the disease and effective treatments. None of the areas dealt with the schizophrenic as part of a larger system, the family. The main components of routine individual treatment were identified (chemotherapy and rehabilitation programs) and their effectiveness was reviewed. Chemotherapy alone was demonstrated to fail in 35 to 50% of schizophrenic patients within a two year period. Rehabilitation programs differed in their success at the enhancement or development of personal skills but generally speaking were not successful at all in preventing relapse.

A good example of the emphasis in research on medical model type applications is provided by an analysis of papers presented at a recent international conference held in Vancouver in July 1990 (Schizophrenia--Poised for Discovery). Of the 250 papers that were presented during the course of this conference, only 13 were related to family concerns.

In the next section a review of the literature dealing with family systems issues and family support programs as they affect the course of the disease will be undertaken.

Family Systems Research

Historical Background

As was noted above, family systems research within the area of schizophrenia has evolved out of the etiological research of the medical model (Goldstein, 1988). A brief history of early family research will be undertaken with a view to providing a clear understanding of the

reasons for the growing emergence of family support programs based upon a family systems framework.

Research into the nature of family relations and schizophrenia has undergone three distinct phases since its inception in the early 1950's (Goldstein, 1988). These phases have charted a veritable 'roller coaster' of interest which was driven by the medical research of the time.

Phase I (early 1950's to late 1960's)

When family therapy first debuted within the psychiatric profession in the 1950's much of the early interest generated by this new clinical method centered on family factors in the development of schizophrenia (Steinglass, 1987). Psychiatrists, much frustrated by the lack of successful treatment strategies for this puzzling disease were eager to apply the early successes of family therapy to the treatment of schizophrenia. A popular hypothesis of the time was that psychotic behavior could express itself at a family as well as individual level. In other words, families as well as individuals could be psychotic. Research of the day took the form of family process research, as investigators attempted to determine specific family-level behavior and communication defects which could be associated with schizophrenia. It is as a result of these developments that familial relationships were first blamed for the development of schizophrenia (Goldstein, 1988).

Three studies received particular attention during this period. Lidz et al (1957) pointed to the high incidence of broken or conflictful marital relations in families with schizophrenics. In 1956 Bateson and his colleagues delivered the now classic paper which purported to

identify a specific communication defect (double bind) within the families of schizophrenics. In 1965, Wynne and Singer provided an analysis of the communication patterns of "normal" versus "psychotic" families. Other popular theories of the day examined the influence of the 'schizophrenogenic' mother, the homosexual tendencies of the father, and the unstable stretching of family boundaries by one member which could lead to psychosis in another (Zucker and Goldstein, 1983). Clearly, the blame for schizophrenia was to be laid at the feet of the parents. There was no thought at this time that if marital schism or communication deviance were present in the family of a schizophrenic it could well be as a result of the influence of the disease upon other family members.

The techniques employed by the family therapists dealing with these 'schizophrenic families' were controversial, highly charged, and more often than not outraged the rest of the psychiatric profession (Steinglass, 1987). Therapy sessions tended to be heated, confrontational, and aggressive as 'aberrant communication patterns' were tackled head on. Family members were often encouraged to reveal fantasy material about each other, no matter how sexually explicit or aggressive its content was. The feeling was that as schizophrenia was obviously the product of conflicts within the family, the exposing of these conflicts would relieve the schizophrenic of the need to 'act crazy' (Steinglass, 1987).

However, the initial exciting results of intensive family therapy as a cure for schizophrenia suffered three separate setbacks which would effectively relegate the practice to the extreme outer fringes of psychiatry. The first was the inability of findings to be successfully

replicated in carefully designed studies. For example, while double bind communication was acknowledged to exist within some families of schizophrenics, it was also found to be a more widespread phenomenon that existed in many 'normal' or 'non-psychotic' families (Steinglass, 1987). The second setback was that clinical results with respect to curing of schizophrenics were disappointing. Relapse rates, which initially decreased among schizophrenics whose families undertook this therapeutic regime, often did not hold up once the therapy stopped or if the therapy lasted for an extended time period (Phares, 1984). However, it was the third setback which was the most harmful to the notion of family therapy and schizophrenia as it then stood. Startling new discoveries within the areas of genetics and pharmocology pointed to a genetic basis of schizophrenia and its successful treatment with antipsychotic medications (Steinglass, 1987).

Phase II (late 1960's to late 1970's)

The results from carefully designed and controlled twin studies of this time period were thought to provide the most compelling evidence of a genetic basis for schizophrenia (McGuffin, 1988). Once again the family was to be blamed for the disease however unwitting their participation in its development. At about this same time the development and widespread use of antipsychotic medications provided the best treatment ever available for schizophrenia. Genetics and pharmocology were "hard sciences" the results of which could be easily studied and replicated. As a result, interest in the biological approaches to schizophrenic research and treatment increased dramatically. Moreover, there was somewhat of a backlash among the

families of schizophrenics who were tired of being blamed for causing the disease in their members because of their inter-relational patterns Coupled with the disappointing and controversial results of the earlier family therapies, and the popularity and successes of the current biological theories, the family environmental perspective was virtually abandoned (Steinglass, 1987).

Optimism amongst the biological researchers was high and many predicted that "schizophrenia would turn out to be a neurochemical disorder with some central, single chemical event gone wrong" (Thomas, pp. 35, 1979). Moreover, the widespread success of neuroleptic medications in controlling schizophrenic symptomology had led to the deinstitutionalization movement. Finally patients who had been institutionalized for long periods of time could be returned to their families, hopefully to live 'happily ever after.'

Phase III (late 1970's to the present)

The current phase has seen a renewal of interest in the importance of family environmental variables in the course of schizophrenia. Three factors have led to this increase in interest (Steinglass, 1987). First, the initial excitement of the biological phase has given way to a realization that genetic research, while promising, has not yet produced conclusive results. In addition the neuroleptic medications which have become the integral component of schizophrenic treatment have proven unable to prevent completely the reoccurrence of psychotic symptomology (Goldstein, 1988). Second, specific family environmental characteristics have been shown to affect the course of the disease (Falloon and Pederson, 1985; Ferris and

Marshall, 1987; Hogarty et al, 1986; Mintz et al, 1987). These characteristics are related to levels of family stress and communication deviance. However, unlike Phase I it is recognized that the family is not to blame for the onset of the disease and that the relationship between family characteristics and schizophrenia is reciprocal. Moreover, several studies have indicated that the family's role comes into play following discharge not during a phase of acute hospitalization (Phares, 1984). That is to say, schizophrenics might have had relatively low relapse rates while hospitalized, but once released and returned to the home, relapse rates increased dramatically.

The final factor that contributed to a renewed interest in this area was the development of new family-focused treatment approaches (Steinglass, 1987). These approaches (loosely termed psychoeducational but in reality several different approaches) were based upon a set of assumptions that viewed family factors and schizophrenic symptoms as having a reciprocal effect upon each other. Moreover, there has been a growing recognition that because they are based upon this belief in reciprocity a family systems framework would provide a more suitable model than one based upon a purely medical model (Grinker and Westermeyer, 1987; Zucker and Goldstein, 1986). Thus there has been a switch in focus from etiology to the clinical course of the disease (Steinglass, 1987).

The main advantage that such approaches have over the earlier attempts at family therapy is their acceptance of the reciprocal effect of biological and family environmental factors in the course of schizophrenia. This acts to focus clinical attention on more modest and appropriate goals for treatment (Steinglass, 1987). Thus, the

therapeutic goal is not the cure of schizophrenia, or even the resolution of an acute psychotic episode. Pharmocology is accepted as the primary approach during an acute episode but attention switches to the family upon its resolution to prevent a psychotic relapse (Falloon and Pederson, 1985).

The above discussion has traced the development of research about schizophrenia that is based on family systems theory from earlier medical model approaches that focussed on etiology and viewed the family relationships as causal to disease onset.

Review of Family Support Programs

This review will now focus on empirical studies of the impact of family support programs on the relapse of schizophrenia. However, the notion of using a family-centered approach in the treatment of schizophrenia is relatively recent. Consequently only five studies have been published to date. Nonetheless, for each of these studies, family systems theory was the theoretical framework utilized.

Four different types of family interventions were used in these studies: Crisis-Oriented Family Therapy; Education, Relative's Support Group and Family Therapy; Behavioral Problem-Solving Family Management; and Family Psychoeducation and Survival Skills. Each Study will be reviewed and then comparisons and contrasts among the interventions will be discussed.

A. Crisis Oriented Family Therapy

In 1978 Goldstein et al reported the first random assignment study of family therapy following release from care (Waring et al, 1986). The impact of a short-term crisis-oriented family therapy program in combination with various levels of medication dosage was examined.

Ninety six patients and their families were randomly assigned to one of four experimental conditions: low dose medication without therapy; low dose medication with family therapy; moderate dose medication without therapy; moderate dose medication with family therapy. All patients were administered the same antipsychotic medication but in varying dosages.

The actual family therapy lasted for only six weeks and was based on crisis intervention theory, a component of family systems theory. The aim was to help the family understand the events around the psychosis and to improve coping and reduce stress (Goldstein et al, 1978).

At nine month follow-up, the relapse rate of the low dose with therapy group was 14% while the low dose without family therapy group had a relapse rate of 48%. The rate of relapse was zero percent for the moderate dose with family therapy group and 21% for the moderate dose without therapy group (a graph of relapse rates for all of the studies may be seen in Table 1).(Goldstein et al, 1978). Moreover, both of the groups receiving the family therapy subjectively reported a significant decrease in the perceived levels of familial stress and burden.

A long-term follow-up was conducted on those participants still in the area after four years. It was found that there were no longer any treatment effects. That is, the effect of the six week intervention

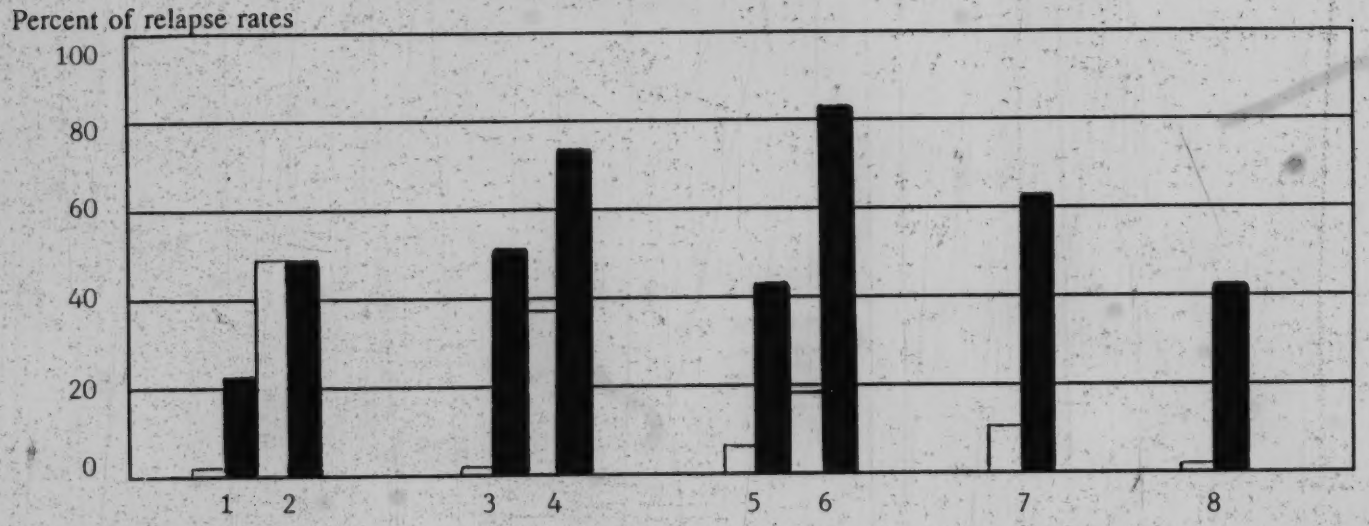
diminished over time (Strachan, 1986). Goldstein in a later review (1981) proposes that the lack of treatment longevity was due to the short time period of the initial intervention.

B. Education, Relative's Support Group and Family Therapy

In 1982, Leff, Kuipers, Berkowitz, Eberlein-Vries, and Sturgeon conducted a study in which relatives' expressed emotion was manipulated experimentally to determine its effect upon relapse (Strachan, 1986). Expressed emotion is defined as the levels of criticism and hostility directed at the patient by family members and is widely believed to be associated strongly with levels of familial stress (Falloon, 1986).

Twenty four patients and their high expressed emotion families were randomly assigned to one of an outpatient control group or an experimental group receiving a program of social interventions including a four week in-home individual-family education program, a nine month multi-family relative's group, and individual family sessions. At nine month follow-up, Leff et al report a relapse rate of zero percent in the treatment group and 50% in the control group. At a two year follow-up, 33% of the treatment group had relapsed as compared with 75% in the control group.

TABLE 1
RELAPSE RATES OF FAMILY SUPPORT STUDIES



1. Goldstein (1978) N=96	9 months	
2. follow-up	4 years	
3. Leff (1982) N=24	9 months	FAMILY SUPPORT
4. follow-up	2 years	
5. Falloon (1982) N=36	9 months	NO FAMILY SUPPORT
6. follow-up	2 years	
7. Doane (1986 N=36	9 months	
8. Hogarty (1986) N=103	1 year	

C. Behavioral Problem-Solving Family Management

In 1982, Falloon, McGill, Boyd, and Wood-Siverio compared the effects of behavioral family therapy versus individual therapy in lowering the levels of perceived familial stress and expressed emotion.

Thirty-six patients and their high-expressed-emotion families were randomly assigned to either treatment or control groups. All cases received an extensive program of treatment regardless of the group to which they were assigned. The family therapy group received twenty-three one hour sessions of behavioral family therapy and two sessions of family education about schizophrenia over a nine month period. The control group received twenty five one hour sessions of individual supportive therapy (living skills management) for the schizophrenic only, but no family therapy. Both groups received these interventions in addition to their regular chemotherapy.

At the nine month follow-up, only one out of eighteen (6%) in the family therapy group had suffered a relapse. This compared with forty-four percent in the individual treatment group. Moreover, Falloon noted that more reliable medication compliance was found in their family treatment group than in the control group and suggested that even if family treatment only leads to greater medication compliance and thus less symptom exacerbation, the family treatment approach is an improvement over routine individual treatment.

In 1986, Doane, Goldstein, Miklowitz and Falloon replicated this study, also with a sample of thirty-six patients and their families. In this study, the relapse rate at nine months was 11% for the family therapy group, and 63% per cent for the control group. Doane et al suggested that the relapse rate for the family group was almost double that of the

family group in the Falloon study due to the chronicity of their sample (Doane et al, 1986). A high proportion of subjects in the Falloon study were first admissions whereas in the Doane study the majority of subjects had had the disease for several years or more.

D. Family Psychoeducation and Survival Skills

Hogarty, Anderson, Reiss, Kornblith, Greenwald, Javna, and Madonia (1986) examined the effects of family therapy and social skills training in conjunction with antipsychotic medications on levels of familial expressed emotion. In this study, one hundred and three patients and their high-expressed-emotion families were randomly assigned to one of four conditions of a two year study following hospital discharge. The four conditions were : medication only; family therapy and medication; individualized social skills training and medication; family therapy, individualized social skills training and medication.

At one year follow-up the medication only group had a relapse rate of 41%, the family therapy and medication group had a relapse rate of 19%, the individualized social skills training and medication group relapsed at 21%, and the family therapy, individualized social skills training and medication group had a relapse rate of 0% (Hogarty et al, 1986). Clearly the optimal intervention in terms of reducing relapse rates was one which combined family therapy with an aggressive individual training component.

Hogarty also makes the point that a problem for some families receiving the family therapy component of this study was that they often expected that the patient would return to work quickly and live on their own. These families had unrealistic expectations about the potential

benefits of the family therapy program. Hogarty maintains that such overenthusiastic attempts to rehabilitate patients could also lead to relapse because of the increased demands for success and improvement placed upon them by family members (Hogarty et al, 1986). This notion is supported somewhat by Reiss (1988) who claims that a potential stressor for families involved in an intervention/support program can be dealing with the slowness of change within the schizophrenic member.

Discussion

The five intervention programs described above have different emphases with no standard approach common to all. Goldstein et al stressed family crisis intervention but did not offer psychoeducation; Leff et al stressed multifamily group support; Falloon et al and Doane et al stressed problem-solving and communication training; and Hogarty et al stressed survival skills and patient management.

Each study had a randomized experimental design with at least one comparison condition that included either little or no family intervention, or individual (as opposed to family) intervention. All of the studies provided family intervention in the months immediately following hospital discharge. The programs shared some other features which are briefly reviewed below.

Connecting

Each program had ways of making the patient and family members feel that their point of view was valued and important (Strachan, 1986). This contrasts with the situation that can occur when

professionals feel that the family members are lacking in insight and skills or when family members believe that that is how they are perceived by professionals (Davis, 1987; Goldstein, 1986).

Reframing

Family members may feel to blame for the patient's problems. These feelings may be due in part to an earlier phase of the medical model that placed the blame for schizophrenia on the family's relationships (particularly the mother)(Laing, 1959). Thus every effort was made to see the problem from each person's point of view and to reframe positively. Therefore, parents can be described as making their best efforts to be helpful versus "emotionally over-involved", as encouraging independence rather than being "hostile and critical" (Falloon et al, 1985).

Focus on Current Transactions

The focus of treatment in all of these programs was on the current transactions between family members, on present-day coping and on how the patients and relatives dealt with stress and each other. This, too, moves away from the practice of assigning blame.

Focus on Concrete Problem Solving

The studies by Falloon et al, Doane et al, and Goldstein et al, focused most explicitly on structured techniques for problem solving. However, the other two studies also focused on practical issues of management and concrete coping strategies (Waring et al, 1986).

Psychoeducation

Each program stressed the importance of facing the psychotic experience directly. It seems that knowing that their relative has schizophrenia and hearing explanations of its likely course and treatment tends to leave relatives feeling more optimistic and in control. The results of psychoeducational interventions are strongly supported in the literature (Platman, 1983; McGill and Lee, 1986; Ferris and Marshall, 1987; Schultz et al, 1985).

Limitations of Reviewed Studies

A consistent picture emerges from these five studies indicating that the combination of antipsychotic medications and supportive family intervention programs may lead to a reduction in the risk of relapse in schizophrenic patients living with their families, particularly in the nine months following hospital discharge. However, these results, while promising, must be viewed with some caution due to the following methodological issues.

All of the samples except for Goldstein (N=96) and Hogarty (N=103) were relatively small. While statistical significance can be obtained with small samples the generalizability of results increases in power with large samples. Yet, this can be a difficult issue to resolve in this type of study given the sheer logistical difficulties of administering a family support program to a sample size of one hundred or more within a given time frame.

None of the studies controlled for chronicity of the disease. The response of family members of a schizophrenic who has had the disease for several years is likely to be quite different than that of the family

members of a recently diagnosed schizophrenic. A classic study by Agnes Hatfield in 1978 concluded that living with a schizophrenic was "a picture of unremittingly disturbed family life marked by almost constant stress" (pp358). Moreover, the chronic nature of this disease means that many families risk the deterioration of their psychological and physical resources to the point that their personal efficiency may be reduced and the stability of the family life threatened (Hatfield, 1978). Other researchers have concluded that the psychological misery of residing with a schizophrenic can be like prolonged grief that is never resolved (Schulz et al, 1986). Yet other studies have concluded that the crucial time for relatives is at the point of the patient's first psychotic episode (Lamb and Oliphant, 1978). Clearly there is widespread consensus as to the effect of the disease upon the family. But there are conflicting beliefs as to the effect of the chronicity of the disease upon family members.

As was discussed above, no attempts have been made to standardize the type of family support being utilized. This makes comparisons of the merits of one type of family program over another difficult.

In none of the studies were family support programs compared with individual centered programs with respect to their effects on the number and length of relapses for the schizophrenic. In each study, once a subject relapsed, he/she was removed from the study. There is no indication whether any subjects relapsed more than once during the period of observation. Moreover, there is no indication as to the length of the hospitalization stays for relapsing subjects. A relapse requiring hospitalization can be thought of as being more serious than one

requiring an increase in medication dosage (American Psychiatric Association, 1989). To obtain a better sense of the effectiveness of family support programs compared to routine individual treatment it would be beneficial to know that a schizophrenic would be more or less likely to have multiple relapses within a given time period or that he/she could spend more or less time in hospital depending upon the type of treatment that he/she had received. Such information is vital in designing programs with the goal being to reduce schizophrenic relapses and time spent in hospital receiving treatment.

Research Questions

Given the methodological weaknesses of the studies reviewed plus the areas of research interest highlighted above, this study will address the following research questions.

1. What is the effect of family support programs compared to routine individual treatment upon the relapse rates of schizophrenia?

2. What is the effect of family support programs compared to routine individual treatment upon the relapse rates of schizophrenia when medication dosage and chronicity are controlled for?

3. What is the effect of family support programs compared to routine individual treatment upon the number and length of those relapses requiring hospitalization for the schizophrenic member?

4. What is the effect of family support programs compared to routine individual treatment upon the number and length of those relapses requiring hospitalization for the schizophrenic member when medication dosage and chronicity are controlled for?

5. What is the effect of family support programs compared to routine individual treatment upon the medication compliance of the schizophrenic?

6. What is the effect of family support programs compared to routine individual treatment upon the medication compliance of the schizophrenic when medication dosage and chronicity are controlled for?

Summary

This literature review has examined briefly the major research areas for the disease of schizophrenia. The evolution of family support from an etiological medical model approach to the current family systems framework was traced. Previous studies which examined the effectiveness of family support programs compared to routine individual treatment were reviewed. Those studies have indicated that family support programs consistently result in lower relapse rates than routine individual treatment. The overall differences in relapse rates between family support programs appear to be related to program content and length.

In spite of a growing acceptance by the psychiatric profession of the validity of family support programs in reducing relapse rates (American Psychiatric Association, pp.1559, 1989), research into and

the implementation of such programs continues at a much lower rate than the evidence warrants. Research has demonstrated that it takes about 20 years between the introduction of a major new idea and its entrance into general practice (Zucker and Goldstien, 1986). Investment in established theories is so strong that the opposition to new points of view is almost directly proportional to the time it took to establish the old theories. If this is indeed the case, then research demonstrating the overwhelming effectiveness of family support programs should act to hasten their widespread acceptance.

CHAPTER IV
METHODS

In order to address the research questions posed in the previous chapter, this study analyzed existing clinical records using a non-equivalent control group. A non-equivalent control group can be used when it is not possible to create experimental and control groups by random assignment from a common pool (Babbie, 1989). In this study it was possible to find an existing "control" group which was similar to the experimental group. The control group had received routine individual treatment while the experimental group had received individual treatment plus family support. Both the control and experimental groups received treatment during the period of observation, November 1985 to May 1988.

Two samples were constructed from each of the control and experimental groups. These samples will be referred to as the unmatched and matched samples. The unmatched sample consisted of all of the subjects who had participated in a family support program in addition to all of the subjects who had received routine individual treatment during the period of observation. The matched sample consisted of those subjects from the family support program matched to the subjects who received routine individual treatment on the two control variables of medication dosage and chronicity. A pooled-variance t-test was utilized to determine whether there was statistical significance in the differences in relapse rates and medication compliance for the unmatched sample. A paired t-test with dependent observations was used to determine whether there was statistical significance in the differences in relapse rates and medication

compliance for the matched sample. All statistical procedures utilized the SPSSx program for data analysis.

This chapter contains the following sections: operational definitions of dependent and independent variables, sample selection, data collection, data analysis.

Operational Definitions

Relapse

Relapse is defined as the return of the florid symptoms of schizophrenia (anger, paranoia, withdrawal, hallucinations) that last for at least one week and require a change in management (hospital admission or an increase in medication dosage) (Doane et al, 1986). A relapse requiring hospitalization can be thought of as being more serious than one requiring an increase in medication dosage (American Psychiatric Association, 1989). Therefore, this measure consisted of the total number of relapses delineated by increases in medication or hospitalization which occurred during the period of observation. In addition, the number of days (if any) spent in hospital was recorded for each subject. Relapse is the dependent variable for this study.

Antipsychotic Medications

These are the medications administered to the schizophrenic to control symptomology. As was noted above, these medications do not cure the disease of schizophrenia but, act to control the symptoms.

Medication Level

The medications and dosages that each subject received was

recorded and then classified as low, medium, or high. This was a three stage process with the researcher utilizing the Compendium of Pharmaceuticals to determine dosage level. A list of the medications and dosages was then provided to a psychiatrist at Alberta Mental Health and also to a psychiatric nurse, both of whom also rated their level. There were few differences between the three sources for all of the files. Assignment of medication level required agreement by two of the three parties involved. A numerical value of 1 for low dose, 2 for medium dose and 3 for high dose was then assigned so as to allow for statistical comparisons. This process was undertaken to ensure reliability for the dosage scale.

Medication level is an independent variable and was controlled for within the matched sample by pairing subjects with the same medication level. This was undertaken so as to control for any varying effects upon relapse. However, variables such as body mass could not be controlled for and may account for some variations in medication effect.

Medication Compliance

Medication compliance is defined as the schizophrenic's success in adhering to the medication regime as prescribed as part of his/her treatment. Given the high rate of non-compliance and its negative effect upon relapse rates, this study examined the effects of the family support group compared to routine individual treatment upon compliance. The subjects' files were scanned for missed injection appointments and for notations by the mental health workers as to prescriptions not being picked up or reports of medication non-

compliance by either the schizophrenic or those living with him/her. This information was then tabulated and rated on a four-point scale; 0=complete compliance; 1=medication missed for 1 month or less; 2=medication missed for more than 1 and up to 4 months; 3=medication missed for more than 4 months (Tarrier et al., 1988). Other studies have adopted a similar approach with the exception that patients were randomly selected for blood tests to ascertain the truthfulness of their claims of medication compliance. In the studies reviewed, such claims generally were found to be truthful (Falloon, 1985; Tarrier et al, 1988). However, for obvious methodological and ethical reasons this could not be undertaken within this study. Consequently, given the nature of this study this was believed to be a relatively reliable method of determining medication compliance.

Chronicity of Disease

Chronicity of disease is defined as the period of time from the initial diagnosis of schizophrenia. Subjects from the two groups that were included in the paired t-test were matched to one another to within one year of chronicity so as to control for any impact that length of disease may have upon family stress. Chronicity of disease is an independent variable.

Family

The family can be of three types; parents and/or siblings if any; other family relations; spouse (legal or common law) and children if any. Subjects must have been residing within the family household while a member of the treatment program so as to control for any effects upon

relapse. This criteria is important given the premise that levels of family stress and schizophrenic symptomology may interact in an escalating spiral resulting in relapse.

Family Support Programs

As the literature review has indicated, these programs can vary widely in their content. For the purposes of this study, the family support program is one that was offered by Alberta Mental Health during the period of November 1985 to May 1988. It was psychoeducational in nature and provided professional support to family members over an eight week period. It would be most similar to the Goldstein (1978) program reviewed in the literature.

Individual Treatment Programs

These are routine treatment programs that deal only with the schizophrenic. Within the context of this study this intervention had chemotherapy as the primary thrust with some behavioral management techniques and/or social skills instruction provided as well.

Sample Selection

To be included in the sample for the unmatched family group, subject files must have met the following criteria:

1. The subject's family must have participated in one of the family support programs offered by Alberta Mental Health during the time period of November 1985 to May 1988.

2. Diagnosis of schizophrenia only. No dual diagnoses were included in the study to avoid confounding the results.

3. The subject must have received treatment for a period of at least one year following admission to the family support group.

4. The schizophrenic must have resided with family members during the observation period.

Files that were accepted into the unmatched family group sample were analyzed for a one year observation period that began with admission to the family support program. For example, if a subject's family attended the support program that began in November 1985, his/her file was analyzed for the observation period of one year following that date.

To be included in the unmatched routine individual treatment group, subjects' files must have met the following criteria:

1. Schizophrenic must have received treatment for at least one year during the same time period (November 1985-May 1988) as those files within the family-group sample.

2. Diagnosis of schizophrenia only.

3. Schizophrenic must have resided with family members during the observation period.

4. Family members of the schizophrenic must not have attended a family support group prior to or during the observation period.

To be included in the matched sample, files from both the unmatched family and routine individual treatment sample, were matched to each other using the following criteria:

1. Medication level. Subjects were matched exactly for medication level so as to control for any effects upon relapse.

2. Chronicity. Subjects were matched to within one year of chronicity to control for any effects upon relapse.

Files that were accepted into the matched sample also were analyzed for a one year time period. This observation period for each pair of files was dependant upon the start date of the particular family support program that was utilized by the subject from the family group sample.

Data Collection

The data for both the unmatched and matched groups was collected from Alberta Mental Health offices in Edmonton. It is important to note that in order to obtain the sample for this study, approximately 250 files in total dating back to November 1985 were analyzed. Traditionally, Alberta Mental Health has provided routine

individual-centered treatment for schizophrenics. However, during the period of November 1985 to May 1988, eight support programs for the families of schizophrenics were offered as well. A computer search was conducted which identified twenty-seven files still available for the participants whose family members attended those support groups. Twenty-four of those files were found to meet all of the above criteria for inclusion in the unmatched family-group sample and three were eliminated because the patient had not resided with the family for the entire period of observation. Data collected from each file included the patient's age, sex, medication level, medication compliance, number of family members with whom she/he resided with, and the type, length and number of any relapses.

A second computer search was then conducted that identified all of the open files at Alberta Mental Health which had a primary diagnosis of schizophrenia and whose family members had not attended the family support group. These schizophrenics had received routine individual-centered treatment only, which consisted primarily of medication management coupled with some informal living skills instruction and/or behavior management. Approximately two hundred such files were identified and analyzed to determine which ones met the criteria for inclusion in the unmatched routine individual treatment sample. Fourty-nine files were found to be suitable while the remaining files were disqualified because they either did not reside with family members during the period of observation or they did not receive treatment during the same time period as those patients within the family support group. The same data on age, sex, medication level, medication compliance, number of family members residing with were

collected from these files. Utilizing the start dates of the family support groups, these files were then examined again to determine the number and length of any relapses over a one year time period.

The 24 files from the unmatched family-group sample and the 49 files from the unmatched routine individual treatment group were then analyzed using the above noted criteria to determine inclusion in the matched sample. Twenty one pairs were found and were included in the matched sample. These 21 pairs were then examined to determine relapses and medication compliance over a one year observation period. The observation period was dependent upon the start date of the particular family support program that the family-group subject had been involved with.

Data Analysis

To address the research questions, statistical tests utilizing SPSSx were conducted. Relapse rates were examined, first for the unmatched sample and significance was tested with a pooled variance t-test. The null hypothesis tested was that the difference between the means of the relapse rates of the two samples is equal to zero against the alternative hypothesis that it is different from zero. Relapse rates were then examined for the matched sample and significance was tested using a paired t-test with dependent observations. Once again, the null hypothesis tested was that the difference between the means of the two samples is equal to zero with the alternative hypothesis being that it is different from zero.

The length of relapses requiring hospitalization was examined for the unmatched samples. Descriptive statistics including the range,

mean, median, mode and standard deviation were used to address differences between the two samples. The length of hospitalization relapses for the matched samples was then examined and once again descriptive statistics were utilized to address differences between the samples.

The effect of the family support program compared to routine individual treatment upon the medication compliance of the schizophrenic was examined for the unmatched sample. A pooled variance t-test was conducted to determine statistical significance The null hypothesis tested was that the difference between the means of the two samples is equal to zero with the alternative hypothesis being that it is different from zero. The effect of the family support program compared to routine individual treatment upon the medication compliance of the schizophrenic was then examined with the matched sample. A paired t-test for dependent observations was utilized to determine statistical significance.

Research Strengths and Limitations

This study, as with all others, has several areas of strength but also suffers from limitations. The following section will contain a discussion of those strengths and limitations.

Strengths

The analysis of existing clinical records utilized in this study provides a good nonobtrusive measure of the effectiveness of family support programs in reducing schizophrenic relapse rates. The data obtained from the clinical files was deemed to be of a high quality in

terms of the information provided. The two stage analysis using both unmatched and matched samples has provided a clear indication of the effect of such programs for both similar and controlled samples. The matching of two of the most important independent variables, chronicity and medication dosage is an approach that has not been utilized in previous published studies. Not only has this matching provided an indication of the effectiveness in relapse reduction, it also has provided an indication of the success of family support programs in increasing medication compliance. Moreover, this study has provided some information as to the interplay of chronicity and relapse.

Previously published studies have demonstrated the effectiveness of family support programs in reducing schizophrenic relapse rates. However, those studies have not provided an indication as to the number of multiple relapses or the length of subsequent hospitalizations. Rather, previous researchers have simply counted subjects as having relapsed or not, and often do not provide any indication as to whether the relapses resulted in hospitalization and if so for how long. The measure of relapse utilized is generally accepted within the literature as being reliable (Doane, 1986).

The rating of medication dosage as either low, medium or high is reliable in that a blind rating of doses was undertaken by the researcher using the Compendium of Pharmaceuticals, a psychiatric nurse and a psychiatrist. The same rating of doses was achieved by all three raters in all but six cases out of 73. For those six cases agreement by two out of three of the raters determined the level of dosage assigned. As it turned out none of those six files were included in the matched samples.

The medication compliance scale is also one that has been used in other studies (Tarrier, 1988).

Limitations

The main limitation of this study was the relatively small sample of family support group subjects (N=24). As was noted in Chapter 3, this is a problem common to research dealing with this type of family support program.

A limitation specific to the analysis of existing data is the fact that there is no opportunity to ascertain additional information not already recorded in the files. There was no opportunity to assess whether the family support program did in fact reduce the levels of family stress as there were no measures of those stress levels available. Moreover, the researcher was not able to control for such characteristics as the actual amount of contact that the schizophrenic has with family members, and whether or not all family members were equally critical of the schizophrenic. Nor were other factors that may contribute to the levels of family stress, such as socio-economic characteristics, addressed as that information was not consistently available within the clinical files.

Another weakness of this study was its inability to control for family size so as to determine whether this factor affects levels of family stress when a schizophrenic member is residing with the family.

Some readers may seek to criticize this study based on the issue of random selection. The fact that these families had the choice whether or not to attend these family support groups makes this a non-random sample. It is a natural assumption that the families that chose to attend may have had more of an interest in improving their coping skills

with regard to this disease and that their motivation to change may have been higher. While this is a valid criticism it is also one that is impossible to deal with given the nature of this study which analyzed clinical files for events that happened up to five years ago. There simply was no opportunity to institute a random assignment to treatment group process. The use of a nonequivalent control group compensates somewhat for this lack of random assignment but it does not solve the problem completely (Babbie, 1989). The issue of randomly assigning patients and their families to treatment groups is of ethical concern and will continue to impose reasonable limits upon future research in this area.

All of the limitations outlined above affect the generalizability of the results of this study. Until those limitations can be dealt with in future research the results of this study are generalizable only to those families that choose to enter similar family support programs.

A complete description of the unmatched and matched samples plus the results obtained using the above noted statistical tests will be discussed in the following chapter.

CHAPTER V

RESULTS

This chapter contains a description of the samples and the results obtained from the analysis of the data for this study. A description of the samples will be presented first followed by the results for each research question.

Description of Samples

Unmatched Sample

The total number of subjects in the unmatched family group was 24. They ranged in age from 18 to 53, with the average age being 27.9 years and the mode 25 years. Chronicity of disease ranged from 1 to 22 years with the average being 6.25 years and the mode 4 years. The number of family members residing with the schizophrenic ranged from 1 to 4. Four of the subjects resided with 1 other person, 10 subjects resided with 2 other people, 9 subjects resided with 3 other people and 1 subject resided with 4 other people. Two of the subjects were receiving low dose medication, 15 were receiving medium dose, and 7 received high dose medication (refer to Table 2).

The total number of subjects in the unmatched routine treatment group was 49 and they ranged in age from 19 to 56, with the average age being 33.9 and the mode 31 years. Chronicity of disease ranged from 1 to 27 years with the average being 9.08 years and the mode 4 years. The number of family members residing with the schizophrenic ranged from 1 to 5. Fifteen of the subjects resided with 1 other person, 22 resided with 2 other people, 10 resided with 3 other people , and one each with 4 and 5 other people respectively. Six of the subjects were

receiving low dose medication, 25 were receiving medium dose, and 18 others received high dose medications (refer to Table 2).

TABLE 2
CHARACTERISTICS OF
UNMATCHED AND MATCHED SAMPLES

	UNMATCHED		MATCHED	
	FAMILY N=24	ROUTINE N=49	FAMILY N=21	ROUTINE N=21
Ages				
Range	18-53	19-56	18-53	19-53
Mean	27.9	33.9	28.9	30.2
Mode	25	31	25	24
Chronicity				
Range	1-22	1-27	1-22	1-22
Mean	6.25	9.08	6.19	6.23
Mode	4	4	4	4
Family Size				
1	N=4	N=15	N=4	N=7
2	N=10	N=22	N=9	N=9
3	N=9	N=10	N=8	N=3
4	N=1	N=1	N=0	N=1
5	N=0	N=1	N=0	N=1
Med. Dosage				
Low	N=2	N=6	N=0	N=0
Medium	N=15	N=25	N=15	N=15
High	N=7	N=18	N=6	N=6

Matched Sample

There were 21 pairs within the matched sample. The subjects from the family group ranged in age from 18-53, the average age was 28.9 years and the mode was 25 years. Chronicity for the family group ranged from 1-22 years, the average was 6.19 years and the mode was

4 years. Four of the subjects resided with one family member, nine subjects resided with two family members and eight resided with three family members. Fifteen of the subjects received medium dose medications, with the other six receiving high dosages (see Table 2).

The subjects from the routine treatment group ranged in age from 19-53 years with the average being 30.2 years and the mode 24 years. Chronicity for these subjects ranged from 1-22 years with the average being 6.23 years and the mode 4 years. Seven of the subjects resided with one family member, nine subjects resided with two family members, three subjects resided with three family members and the last two subjects resided with four and five family members respectively. Fifteen of these subjects received medium dose medications with the other six receiving high dosages (refer to Table 2)

Results of Tests of Hypotheses

The first research question asked what is the effect of family support programs compared to routine individual treatment upon the relapse rates of schizophrenia?

Relapse rates were determined by counting the number of medication increases due to increased schizophrenic symptomology and/or hospitalization due to symptomology within a one year period.

The 24 files from the unmatched family group were compared to the 49 files from the unmatched routine individual treatment group. A t-test with pooled variance was utilized to address this question. The two samples had similar variances for the two independent variables of medication dosage ($F=1.27$, $p>.05$) and chronicity ($F=1.55$, $p>.05$). The relapse rates were 29.2% for the unmatched family group and 63.3% for

the unmatched routine treatment group. Within the family support group sample, only one subject relapsed more than once (that subject relapsed twice) for a total of 8 relapses for 7 subjects. Within the routine individual treatment group, twenty-three subjects relapsed once, five subjects relapsed twice, one relapsed three times and two others relapsed four times. The total number was 44 relapses for 31 subjects. The difference between the relapse rates of the two groups was statistically significant ($t=2.54$, $df=71$, $p<.02$). In other words, in the unmatched sample, the family support program had a significantly lower relapse rate than did the routine individual treatment program.

The second research question was, what is the effect of family support programs compared to routine individual treatment upon the relapse rates of schizophrenia when medication dosage and chronicity are controlled for?

The matched sample of 21 pairs was used to address this question. The relapse rates for this sample was 33.3% for the family treatment group and 61.9% for the routine individual treatment group. Moreover, the numbers of multiple relapses differed as well. Within the family support group sample only one subject relapsed more than once (that subject relapsed twice) for a total of 8 relapses for 7 subjects. Within the routine individual treatment group, two subjects relapsed twice and one subject relapsed four times for a total number of 18 relapses for 13 subjects (10 subjects relapsed once). As with the previous test, these relapse rates appear considerably different. However, the paired t-test did not obtain achieve significance ($t=1.75$, $df=20$, $p>.05$). Nonetheless, a clear pattern can be discerned between

the results for the unmatched groups and for the matched group; the relapse rates for the family support group are generally lower than the relapse rates for the routine individual treatment group.

Tables 3, 4, and 5 show the relapse rates, medication dosages and chronicities of the unmatched and matched samples. As can be seen, the matched and unmatched samples were very similar with respect to medication dosage. However the average chronicity of the matched routine group was noticeably lower than the unmatched routine group. It is not believed that this factor contributed to the inability of the paired t-test to achieve significance due to the similarities in the relapse rates and medication dosages of both the unmatched and matched routine samples. Rather, it is believed that the inability to achieve statistical significance is related to the small sample (N=21). Norüsis (1988) makes the point that with paired t-tests, small differences between groups may be statistically significant with large sample sizes of 100 or more but with small samples (50 or less) even a large difference may not be significant.

TABLE 3

RELAPSE RATES

	FAMILY	ROUTINE
UNMATCHED	29.2%	63.3%
MATCHED	33.3%	61.9%

TABLE 4

AVERAGE MEDICATION DOSAGE

	FAMILY	ROUTINE
UNMATCHED	2.208	2.245
MATCHED	2.286	2.286

TABLE 5

AVERAGE CHRONICITY IN YEARS

	FAMILY	ROUTINE
UNMATCHED	6.25	9.08
MATCHED	6.19	6.24

The third question was, what is the effect of family support programs compared to routine individual treatment upon the number and length of those relapses requiring hospitalization for the schizophrenic member?

A count was made of the number of times (if any) that subjects were hospitalized due to schizophrenic symptomology and the number of days spent in hospital was recorded.

Within the unmatched sample the family group had 7 different subjects out of 24 relapse for a total of 8 relapses (one subject relapsed twice). Of these eight relapses, four involved increases in medication dosage and the other four involved hospitalizations (see Table 6). In other words, 50% of the family group relapses required hospitalization. The total time spent in hospital for these subjects was 135 days with an average of 33.5 days. However one subject spent a total of 84 days in hospital and could be considered to be a statistical outlier. If this outlier is removed from the analysis, the average number of days spent in hospital for the family group drops to 17 days.

Within the routine treatment group, 30 subjects out of 49 relapsed for a total of 44 relapses over the one year period. Of these relapses, 38 involved increases in medication dosage and 6 involved hospitalizations (13.6%). The total number of days spent in hospital were 210 for an average stay of 35 days. There were no outlying values in the routine group.

If one excludes the outlier from the family treatment group then there is a considerable difference in average length of hospitalizations between the two treatment groups (17 versus 35), but statistical significance using a t-test with pooled variance was not achieved ($t=1.56$, $df=7$, $p>.05$). However, the difference in rates of hospitalization relapses (4 out of 8 relapses for the family treatment group compared to 6 out of 44 relapses for the routine treatment group) was tested and significance was achieved ($t=2.50$, $df=50$, $p<.05$).

TABLE 6
RELAPSES

A. UNMATCHED	FAMILY N=24	INDIVIDUAL N=49
Total # Relapses	8	44
# of Medication Relapses	4	38
# of Hospitalizations	4	6
Length in Days	9, 20, 22, 84	9, 20, 29, 45, 49, 58
Total # of Days	135	201

B. MATCHED	FAMILY N=21	INDIVIDUAL N=21
Total # Relapses	8	17
# of Medication Relapses	4	15
# of Hospitalizations	4	2
Length in Days	9,20,22,84	49,58
Total # of Days	135	107

The fourth research question was, what is the effect of family support programs compared to routine individual treatment upon the number and length of those relapses requiring hospitalization when medication dosage and chronicity are controlled?

Within the matched sample 7 of 21 subjects in the family group relapsed for a total of 8 relapses. Four of these involved hospitalizations (50%), again for a total of 135 days of which one was an outlier at 84 days. The routine individual treatment group had 13 different subjects out of 21 relapse for a total of 17 relapses. Of these, only two involved hospitalizations (11.8%) for a total of 107 days. The family group averaged either 17 days of hospitalization excluding the outlier or 33.5 days when the outlier is included. The routine treatment group had an average of 53.5 days of hospitalization and this total remained the same with the removal of the family group outlier's "mate". Using a pooled variance t-test ($t=6.35$, $df=3$, $p<.01$) the difference between the mean number of days of hospitalization was found to be statistically

significant. However, the family group had 4 hospitalizations while the individual group had only 2 hospitalizations. This difference in relapse rates requiring hospitalization (50% compared to 11.8%) was tested using a t-test with pooled variance and significance was achieved ($t=2.19$, $df=23$, $p<.05$). The relevance of this fact will be discussed in the following chapter.

The fifth research question was, what is the effect of family support programs compared to routine individual treatment upon the medication compliance of the schizophrenic?

A pooled variance t-test was used with the unmatched sample to address the question of medication compliance. The t value (0.77, $df=71$, $p>.05$) showed no statistically significant difference in the medication compliance rates between the two treatment groups of the unmatched samples.

The sixth research question was, what is the effect of family support programs compared to routine individual treatment upon the medication compliance of the schizophrenic when medication dosage and chronicity are controlled?

The matched sample of 21 pairs was used to address this question. The results were not significant ($t=1.14$, $df=20$, $p>.05$). However an examination of Table 7 reveals that three subjects from the routine treatment group missed medication for one to three months and one missed medication for more than four months. Within the family group, only one subject missed medication for one to three months and none missed for more than four months. Moreover the variances of

medication compliance were .333 for the family group and .848 for the routine treatment group. Given that variability in medication compliance is a factor affecting relapse it is believed that these results point to a trend of the family group being more compliant but that the small sample size again did not permit statistical significance to be achieved.

TABLE 7
MEDICATION COMPLIANCE*
MATCHED SAMPLE

FAMILY, N=21 VARIANCE=.333		INDIVIDUAL, N=21 VARIANCE=.848	
Med. Compliance	Number	Med. Compliance	Number
0	15	0	13
1	5	1	4
2	1	2	3
3	0	3	1

*0=complete compliance

1=medication missed for 1 month or less

2=medication missed for more than 1 and up to 4 months

3=medication missed for more than 4 months

Summary

Results obtained using both an unmatched sample and a sample matched on medication dosage and chronicity indicate that the Family-based program was very successful. The routine individual treatment group relapsed at roughly twice the rate of the family support group. The study also indicated that the relapsing schizophrenics from the family support groups were more likely to require hospitalization but that their stay in hospital was considerably shorter than those schizophrenics who received routine individual treatment. While statistical significance was not achieved due to a small sample size, there also was some indication that the family support group achieved a higher rate of medication compliance than did the routine individual treatment group within the matched sample.

CHAPTER VI
DISCUSSION

This chapter will include a discussion of the results of the statistical analysis of the study data. Each research question will be addressed in turn and the implications arising there from will be discussed. A model family support program will be proposed and recommendations for future research will be made.

Research Questions

1. What is the effect of family support programs compared to routine individual treatment upon the relapse rates of schizophrenia?

The results obtained using unmatched sample clearly indicate that this family support program resulted in lower relapse rates for schizophrenia than did routine individual treatment. The rates of relapse, 29.2% for the family treatment group and 63.3% for the routine individual treatment group, are similar to those reported in previous studies that have addressed this question. In the five previous studies reviewed in Chapter 2, the relapse rates for the family treatment groups were significantly lower than those of the individual treatment groups (Doane, 1986; Falloon, 1982; Goldstein, 1986; Hogarty, 1986; Leff, 1982). The relapse rates in these studies varied from 0% to 11% for the family treatment groups at nine months and from 50% to 63% for the individual treatment groups also at nine months.

However a question that arises is why the family treatment group relapse rate in this study is two to three times higher than those rates in previous studies. There are two factors which might account for this difference; medication dosage and chronicity.

Medication Dosage

In only one study (Goldstein, 1978) was medication dosage manipulated. Subjects were randomly assigned to groups receiving low or medium doses. In the remaining studies medication was administered at the lowest dose possible. Each individual dose was considered to be the optimal amount to reduce schizophrenic symptomology in the subject. Furthermore, it was assumed by the researchers in those four studies that minimal dosages would mean better responses by subjects to psychosocial interventions because of the lessening of side effects such as drowsiness and social withdrawal (American Psychiatric Association, 1989; Falloon et al., 1982; Leff et al., 1982). However, these studies do not indicate whether the "optimal" dose could be considered to be a low, medium or high dose when compared to other subjects in the study. In other words, subject A could be receiving the lowest possible dose considered optimal for him/her but when compared to subject B, A's dose would be considered to be high. An examination of the medication doses for the family support sample in this study reveals that fifteen subjects were receiving medium doses of medication, seven were receiving high doses and the remaining two were on low doses of medications. That is, twenty-two of the twenty-four subjects in the family support sample were receiving medium to high dose medications. While the assumption can be made that each of these subjects was in fact receiving the optimal minimum dose required to subdue symptomology, the literature clearly indicates that higher dosages of neuroleptic medications, because of side effects, confound the effectiveness of psychosocial interventions (American Psychiatric Association, 1989). It is not possible to determine whether

the medication dosages for subjects within this study were higher than those administered in the studies from the literature review.

Chronicity

The possiblility that the subjects in the family support groups in this study were more chronic than those in the previous five studies and that this variable affected the subsequent relapse rates needs to be examined. While none of those studies has addressed this question directly, an examination of the samples of each reveals that this is indeed the case. In each of the other family support studies significant proportions (23% to 69%) of the samples were first admissions with chronicity of one year or less. Only three subjects (12.5%) of this family support sample were first admissions with 71% having chronicity of four years or more. Thus it seems likely that the difference in the family group relapse rate of this study compared to other studies is due to differences in the medication dosage and chronicity of the samples. Given that medication dosage and chronicity have an impact upon relapse rates it is a logical step to control these factors specifically to achieve a better understanding of their effects.

2. What is the effect of family support programs compared to routine individual treatment upon the relapse rates of schizophrenia when medication dosage and chronicity are controlled for?

After matching the two samples on the potentially confounding characteristics of medication dosage and chronicity, relapse rates were not very different from those obtained on the unmatched sample. A much smaller proportion (33%) of the family support group sample

relapsed than of the routine individual treatment group sample (61.9%). Moreover, as was noted previously, the numbers of multiple relapses differed with 14.3% of the family group relapsing more than once compared to 23.1% for the routine individual treatment group.

The family relapse rate was higher in the matched sample than in the unmatched sample due to the fact that three subjects were discarded in the matching process and none of those three had relapsed in the unmatched sample. Unfortunately due to the small sample size, no statistically significant difference was detected using the paired t-test (Norusis, 1988). However, a clear pattern has emerged from the two samples, matched and unmatched that this family support program resulted in lower relapse rates than did routine individual treatment.

3. What is the effect of family support programs compared to routine individual treatment upon the number and length of those relapses requiring hospitalization for the schizophrenic member?

The results have indicated that, except for the one long-term hospitalization of the family sample, the family support program resulted in shorter hospital stays for this type of relapse. However, fully 50% of the family group relapses required hospitalization as compared to 13.7% for the routine individual treatment group. This finding supports the notion discussed in the Literature Review that an unwanted 'side effect' of family support programs may be that unrealistic expectations for success are raised within some families (Hogarty, 1986; Reiss, 1988). This in turn is translated into increased expectations and stress placed upon the schizophrenic by overenthusiastic family members. These increased expectations may then result in relapses of a more serious

nature requiring hospitalization. Therefore, while the schizophrenics from the family support group have a lower rate of relapse overall, they may have an increased chance of experiencing a more serious relapse requiring hospitalization.

4. What is the effect of family support programs compared to routine individual treatment upon the number and length of those relapses requiring hospitalization for the schizophrenic member when medication dosage and chronicity are controlled?

The results pertaining to this question indicate an average hospitalization period for the relapsing family group schizophrenics of 17 days compared to 53.5 days for the routine individual treatment group. But fully 50% of the relapses of the family group resulted in hospitalization as compared to 11.8% for the routine individual treatment group. Nonetheless the relapses of the individual group tended to be considerably longer than those of the family support group sample.

Once again the data would seem to indicate that schizophrenics from the family support group are at an increased risk of relapse requiring hospitalization as noted above, but they will spend less time in hospital than schizophrenics who received routine individual treatment. Unfortunately none of the five previous studies that looked at the effectiveness of family suppport programs in reducing schizophrenic relapse rates addressed the question of the effect of such programs upon the length of hospitalization relapses for the schizophrenic. Therefore, there is no indication within the literature as to whether these averages are similar to those of previous studies. Moreover, it is

not clear why family support programs would result in shorter hospitalization periods for relapsing schizophrenics. The literature is quite clear in the assertion that family stress can result in increased rates of relapse for schizophrenics but it gives no indication as to why relapsing schizophrenics from family support programs would require less time in hospital. One possibility, for which there is no evidence at this time, is that families who have participated in such support programs may be more willing to provide care at an earlier stage in the hospitalization of the schizophrenic. This eagerness or willingness of family members to receive the schizophrenic again may influence the psychiatrist's decision to release the patient into the care of the family.

5. What is the effect of family support programs compared to routine individual treatment upon the medication compliance of the schizophrenic?

There was no difference in the medication compliance rates between the two unmatched samples. Therefore it is not likely that the difference in relapse rates between these two groups could be attributed to better medication compliance by the family support group subjects.

6. What is the effect of family support programs compared to routine individual treatment upon the medication compliance of the schizophrenic when medication dosage and chronicity are controlled for?

Statistical significance was not achieved for the difference in medication compliance rates between the two groups. However it was

felt that this was due to the small sample size as noted in Chapter 5, and that the family group did in fact have a trend indicating improved medication compliance. The positive effects of family support groups upon medication compliance was noted in the review of the Falloon study in 1982. Nevertheless, as with the unmatched sample, other studies have demonstrated that even with excellent compliance in both treatment groups the family approach still reduced relapse rates (Goldstein et al, 1978; Leff et al, 1985). Thus while family treatment may improve medication compliance, it also has an effect beyond that of increased compliance.

All research sets out to answer certain questions, or to provide information. In the process of doing so, new and often more complicated questions arise leaving the researcher with the feeling that he/she is involved in a never ending quest for knowledge. The following section will apply the knowledge that has been gained from this study in a practical context with respect to the treatment of schizophrenia and, in doing so, will pose new questions that need to be addressed in future research endeavours.

Practical Application and Directions for the Future

This study has examined the effectiveness of a family support program in reducing the relapse rates of schizophrenia. The program was 8 weeks in duration and provided education and a relatives group for the participants. Results from both unmatched and matched samples indicates that the program was successful in reducing schizophrenic relapse rates during a one year period following the

program start as compared with the individual treatment group. These results are consistent with other published studies of family support/intervention programs for the treatment of schizophrenia. While those studies offered the same general type of program as the Alberta Mental Health support group, some differed in that they also provided extensive family therapy both in and out of the home (Doane, 1986; Falloon, 1982; Hogarty, 1986). Common features of all of these programs include; positive attitude expressed towards families, an educational component, problem solving component, medication information, and positive outcomes (Kuipers and Bebbington, 1990). Yet the question remains as to which specific type of intevention or support program provides the best results for reducing schizophrenic relapse. As Kuipers and Bebbington (1990) have indicated, there are advantages and disadvantages to all of the approaches utilized in the five published studies (see Table 5).

Using the advantages and disadvantages as outlined in Table 5 in addition to other problems that family support programs face as detailed in the conceptual framework (general problems of engagement, tendency to attract primarily open families) a model family support program for the treatment of schizophrenia will now be proposed.

TABLE 8

DIFFERENT FAMILY SUPPORT MODELS

MODELS	ADVANTAGES	DISADVANTAGES
1. Education only.	Increases optimism, helps families to engage	No evidence of behavior or attitudinal change.
2. Self Help Relatives' Group	No staff cost. Support, reduces isolation, sharing of problems.	May not be able to deal with more intimate or complex problems.
3. Education and Relatives' Group	Cost effective, 2 staff can see several families. Reduces isolation and enhances coping skills.	Not always possible to engage the relatives. Patient not involved.
4. Education and Family Sessions in the Home.	Hard for family to avoid. Complex and intimate problems can be tackled. Patient involved.	High staff cost. Families still isolated.
5. Education, Relatives Group and Family Sessions.	Can be more flexible than other models. Effective.	High staff costs.

Model Family Support Program

Difficulties Encountered by Family Support Programs

This study has detailed several issues that impact upon the effectiveness of family support programs in reducing schizophrenic relapse rates.. Those issues include: problems of engagement; the effectiveness of short duration programs in maintaining results over time; accessability of support, and family and patient co-involvement.

As Kuipers and Bebbington (1985) inidcate, engagement problems generally are of three types. First, some families may feel threatened by the availability of a specialised service for them and can construe offers of help as treatment with the implication that the family is at fault or has somehow failed. Second, a significant number of the families that refused help in their study were those of first admission patients. In this scenario three processes may be at work; denial, the belief that the psychotic episode will be the only one, and anger and frustration directed at the professionals involved. Finally, many families simply do not understand or accept the rationale of family support/intervention programs. Family members may make unrealistic demands that the patient be cured and may not understand or see their role in the process of support. The conceptual framework for this study suggests that a relatively closed family would be unlikely to seek out or to accept offers of help in the nature of a family support program.

The Goldstein study in 1978 demonstrated the lack of effectiveness of a short duration (6 weeks) support program over a four year follow up. Given the serious and ongoing nature of the problems facing many of the families of schizophrenics, it is understandable that the impact of a short duration program would diminish over time. In a later review (1981) Goldstein proposed that the lack of treatment longevity in his earlier study was due to the short time period of the initial intervention. Of the five family support studies reviewed in the literature, the ones that were most successful at maintaining their results over two year periods were those in which the intervention lasted for at least nine months or was ongoing.

The accessability of support is an issue that is related to but not identical with the problems of engagement. A common problem with family support programs is the fact that they are difficult to administer to large groups of people (Smith and Birchwood, 1990). Moreover, to this point in time such programs generally have been an added service of psychiatric care as opposed to the core focus of treatment (Hahlweg et al., 1989). Funding for the administration of such programs often is scarce due to their relatively recent entrance into the field of psychiatric treatment, what is considered to be their controversial nature amongst many in the mental health profession, their as yet unknown long-term effectiveness, and their inability to service large numbers of families without a shift in agency focus. As a result many family support programs are administered by staff on a volunteer basis in their spare time. Given the limited number of such programs and the limited amount of resources available to them there simply is no way at this time that these programs could cope with the potential demands placed upon them should their acceptance by the psychiatric community become widespread.

Another area of concern with the issue of availability is the fact that once a fixed duration program like Goldstien (1978) or the Alberta Mental Health program ends, the participants must then approach a self help relatives' group or arrange appointments with the patients's mental health worker. However as Kuipers and Bebbington (1990) indicated, such self help groups often are unable to deal with more intimate or complex problems. Arranging an appointment with the patient's mental health worker may at first seem a viable option for some, but a closer examination reveals some difficulties. There likely is no doubt that

these workers would be more than willing to assist if they were able, however there are several problems associated with this approach none of which has anything to do with professionalism or dedication to the client. First, a common reality amongst mental health professionals is that they already are carrying extremely heavy caseloads. This often makes arranging an appointment a long-term process. Second, these workers generally are available only during office hours on weekdays. Those two factors combine to rule out any type of immediate support/crisis intervention for family members. Third, since any appointments would have to be arranged during the day, family members would have to take time off from work to attend. This places an economic burden upon the family that already is struggling to cope with other stressors. These three problems reinforce the social isolation of the families of schizophrenics. While a support program is running, family members can meet others in similar situations and they have access to mental health professionals on at least a weekly basis. However once the program is finished, support for these families either ceases or becomes much more difficult to access.

All of the studies reviewed had family and patient co-involvement. That is to say there were educational sessions in all of the programs which family members would attend in addition to joint family and patient sessions generally dealing with the development of new interactional patterns, and defusing emotions. It is widely agreed among researchers that schizophrenic patients, due to their symptomology, would not be able to process or attend to those educational sessions (Hogarty et al, 1986; Kuipers and Bebbington, 1990). The Alberta Mental Health programs were specifically

education oriented for family members and included no family/patient co-involvement. However, the programs that were able to achieve and maintain the best results in terms of lowering family stress levels and schizophrenic relapse rates were those that did include a joint family/patient component. A major stressor for family members is having to adapt to the drastic change in personality of the schizophrenic (Hatfield, 1978). Interactional patterns that may have been developed over a long period within a family suddenly can be altered drastically. A program that is designed to work with family members in conjunction with the patient in developing new interactional patterns over an extended period of time is more likely to see continued success in terms of reduced family stress and relapse rates.

Practical Application

Kuipers and Bebbington (1990) have identified five main aims or goals of a family support program. First, to increase the tolerance of symptoms and the understanding of behaviour among family members. The method of accomplishing this would be to provide information to family members in a two way process. Family members must be offered realistc task setting and a realistic time frame to help them to put the disease and its effect upon the family into perspective.

Second, it is important to help families and patients to be more independent, and to live separate adult lives thereby reducing overinvolvement. The method for accomplishing this goal would be to give permission for relatives to spend time apart. Family members must be helped to deal with their own needs while encouraging the patient in adult, independent behaviour. The patient must be allowed to withdraw

at times. Marital alliances must be strengthened (if they exist) and family members must be able to participate in realistic limit setting. The family stress and family caregiving literature strongly support the notion of respite care as decreasing the levels of family stress when caring for a family member with a long-term disability. This is a notion that has not been examined as of yet with regards to schizophrenia and the family but should provide similar results.

The third goal of a family support program is to increase the problem solving skills of members individually and the family as a whole. The method to assist in this would be to help family members and the patient to choose realistic tasks, to break those tasks into small parts, to reinforce changes, and to provide positive feedback for successes.

The fourth goal is to defuse emotions with the family. The method for accomplishing this is to facilitate the processing of anger, grief, and guilt rejection stigma by family members and the patient.

The final goal is to improve patient skills. The method for this is to offer the patient external structure (day programs or supported work for example). The patient must be helped to learn to cope with residual symptoms, and assisted in improving his/her insight into symptom triggering situations. The patient must also be helped to improve his/her coping skills.

Given these five main goals plus the difficulties encountered by family support programs as outlined above, a model family support program would consist of the following components: educational component for family members only, family and patient co-involvement in an open ended series of therapeutic interventions which would be

needs-led; continued family involvement in a self help relatives' support group coupled with an aggressive outreach component by the mental health workers; and access to respite care services for family members.

The basic framework of the Alberta Mental Health program is outlined as follows:

Session I: Basic introduction to the program. (A) allows families to identify their problems. (B) Definitions of psychosis.

Session II: (A) Living with schizophrenia. (B) Relapse, recognition and dealing with the emotions in the family.

Session III: Medication.

Session IV: a film about schizophrenia and the family ("Strange Voices").

Session V: Speaker from a self help relatives' group

Session VI: How to let go.

Session VII: (A) Dealing with caregivers. (B) Treatment modalities of the rehabilitation team.

Session VIII: (A) Summary discussion. (B). Evaluation.

This eight week program would serve adequately as the family education component. The model family support program would consist of a variety of stages in which stage 1 would be family participaton in the eight week educational sessions. Upon completion of the eight week program family members and the patient would then be involved in the open ended needs-led therapeutic intervention which comprises stage 2. Two goals of this therapeutic intervention would be

to defuse emotions, and assist all of the family members in developing and utilizing new interactional patterns if necessary. Contact would likely consist of weekly sessions to begin with and, as progress is made, would be shifted to bi-weekly and then monthly sessions. It is important that this stage be open ended so as to accommodate the variations in individual differences and needs that exist among participating families. As progress is made in stage 2, and upon agreement by participants and the therapist, the family would begin to decrease the number of sessions. This would be the time when family members are put into contact with an ongoing self help relative's group. This would serve to decrease the family's social isolation.

In conjunction with the self help group would be an outreach program led by mental health professionals. This outreach program would consist of home visits by mental health professionals and would have two primary goals. First, it would assist with any of the intimate or complex problems which the self help group might not be able to. Second, it would decrease the social isolation of those families that had not established contact with a self help group. These two steps (self help group and outreach) would comprise stage 3.

Another aspect of the model family support program would be the availability of a family respite care program. This would provide family members with the opportunity to leave behind the stresses of caregiving on a short-term basis (generally a weekend at a time). It is important to note that all of the services provided should be available in the evening or weekends for any participants unable to attend during the day. The final component of this support program would be the availability of 24 hour crisis intervention by mental health professionals.

To deal with the problems of engagement it is important that families be able to engage through a variety of contact points such as community agencies, family physicians, social workers, private psychiatrists and counsellours, hospitals, and crisis lines. It would be important, that upon the initial diagnosis of schizophrenia, immediate support and information about the program be provided to family members. The tone of the initial contact with the family is often crucial in determining whether they participate. If members view the program as indeed being supportive and not laying fault or labelling they will be more likely to participate (Kuipers and Bebbington, 1990). At any rate, information and encouragement to attend would have to be provided gently but insistently and continually to resitant families throughout the treatment of the patient. Obviously, family members must decide to attend on their own accord or positive results are not likely to be achieved. This is related to the self-selection problem discussed in the limitations of this study and remains unanswered. The long term goal would be to have it as a natural assumption that any family with a newly diagnosed schizophrenic member would participate in such a program as part of the routine treatment for schizophrenia.

Future Research

As was noted above, research seeks to answer questions and to provide knowledge. However in doing so research also poses new questions. This study has not been an exception in that sense. Out of the literature review, the results, and the discussion have arisen a number of new areas for future research. These new research questions will now be discussed.

While family support programs have been shown to be successful in reducing the relapse rates of schizophrenia, it still is not clear what it is about these programs that accomplishes this feat. The model program proposed above attempts to address the limitations of other support programs and of routine psychiatric treatment in reducing the levels of family stress and schizophrenic relapse. While the various components of this program may make intuitive sense, there is no evidence at this time supporting the position that such a program would in fact work better at decreasing levels of family stress and schizophrenic relapse rates than other programs. Several studies have demonstrated the success of a variety of support programs, each different in some respects from the others. What is needed now are studies that look at the effectiveness of one family support program as compared with others in an attempt to identify the components that actually work to decrease relapse.

Moreover, at this point in time we have little indication as to the longevity of the results achieved by these programs. Two studies, Leff (1982) and Falloon (1982) had a two year follow up that demonstrated that, while there were still significant differences in the relapse rates between the treatment groups, the differences had decreased over time. Goldstein (1981) indicated that after four years there was no difference in the relapse rates of his treatment groups. Future research needs to determine the longevity of results and of the effect of program length and other characteristics upon that longevity.

This study indicated that family support programs may be able to reduce the length of time spent in hospital by the schizophrenic when he/she is relapsing. However, there is no indication as to why this might

occur. Future research needs to examine this question to determine if this is in fact the case and why it would occur.

All of the family support studies reviewed in the literature and in this study had relatively small samples of about 25 subjects per treatment group. Future research in the area of family support programs needs to feature larger sample sizes of at least 100 subjects. There can be no denying that this would be a difficult task given the nature of family support programs but an option could be to link programs from several centres or cities into the same sample.

Factors such as family stress, chronicity, medication dosage, and medication compliance need to be more strictly controlled in future research. These are arguably the most important intervening variables with respect to the effect of family support programs upon schizophrenia, yet their treatment in past studies has been inconsistent.

Future research should examine the effect of family size upon the levels of family stress and relapse rates. The epidemiological evidence noted in Chapter 3 suggested that the prognosis of schizophrenics in developing countries is more positive due to the lower levels of family stress resulting from the assistance of extended family members in the care giving for the schizophrenic member. This is related to the notion of respite care as reducing stess levels within the family. Therefore, it is important to determine whether larger families having more members able to assist in caregiving are less likely to experience increased levels of stress than are smaller families.

Future research needs to determine the effect of gender upon relapse rates within the context of family stress. The socialization and developmental literature supports the notion of societal gender-based

expectations upon the individual (Phares, 1984; Shackleton and Fletcher, 1984). In turn it can be argued that family members would place different expectations upon a schizophrenic depending upon his/her gender. It must be determined whether or not the gender of the schizophrenic places him/her at greater risk of relapse within a stressful family environment. This information could then be used to assist in the designing and implementation of support programs that are tailored to the specific needs of male versus female patients and their families.

Summary

This study compared the effectiveness of an eight week family support program with that of a routine individual treatment group in reducing schizophrenic relapse rates. Results obtained using both an unmatched sample and a sample matched on medication dosage and chronicity indicate that the program was successful. The routine individual treatment group relapsed at roughly twice the rate of the family support group. Moreover, the study indicated that the length of stay in hospital for relapsing schizophrenics from both unmatched and matched family support group sample was considerably shorter than for those schizophrenics from the routine individual treatment group.

Several implications arising from these findings were discussed and then applied to the development of a model family treatment program. Future research questions that arose from the study were also addressed.

While the evidence seems clear that such family support programs do decrease the relapse rates of schizophrenia, it is unclear why these programs are not used more routinely as part of the

treatment for schizophrenia. There has been resistance in the past from professionals in the psychiatric field, partly because of the failures of family therapy programs in the late 1950's in dealing with this disease. This problem was alluded to at the conclusion of the Literature Review when the point was made that it generally takes about two decades for practice to develop out of theory. Prevalent in the psychiatric field is the belief that the true cure for schizophrenia will be biological in basis and probably is just around the corner. The recent international research conference "Schizophrenia -- Poised for Discovery" which was discussed earlier is a good example of this thinking; of the more than 250 research papers presented, only 13 were concerned with family issues. What is needed is a realization and acceptance that while discovery of a biological cause or cure may indeed be just around the corner, family support programs work now to decrease relapse rates and to assist families in coping with the effects of this destructive disease

REFERENCES

American Psychiatric Association Task Force on Treatments of Psychiatric Disorders. (1989). Treatments of psychiatric disorders. Washington, D.C. American Psychiatric Association.

Babbie, E. (1989). The practice of social research. Belmont: Wadsworth Publishing Inc.

Bebbington, P.; and McGuffin, P. (1988). Schizophrenia, the major issues. Oxford: Heinemann Professional Publishing.

Bellack A.S. ed. (1989). A clinical guide for the treatment of schizophrenia. London: Plenum Press.

Brown, G.W.; Birley, J.L.T.; and Wing, J.F. (1972). Influence of family life on the course of schizophrenic disorders: a replication. British journal of Psychiatry, 121: 241-258.

Carstairs, G.; Early, D.; Rollin, H.; and Wing, J. (1985). Informing relatives about schizophrenia. Bulletin of the Royal College of Psychiatrists, 9: 59-60.

Davis, S. (Spring, 1987). Four conceptualizations of schizophrenia as models for treatment. Health and Social Work, 91-100.

Davison, G.C.; and Neale, J.M. (1986). Abnormal psychology. New York: John Wiley and Sons.

Deakin, J.F.W. (1988). The neurochemistry of schizophrenia. in Bebbington and McGuffin eds., Schizophrenia, the major issues. Oxford: Heinemann Professional Publishing.

Doane, J.A.; Goldstein, M.J.; Miklowitz, D.J.; and Falloon, I.R.H. (1986). The impact of individual and family treatment on the affective climate of families of schizophrenics. British Journal of Psychiatry, 147: 279-287.

Dole, W. (1976). Family coping with the mentally ill: an unanticipated problem of deinstitutionalization. Hospital and Community Psychiatry, 27:183-185.

Falloon, I.R.H. (1986). Family stress and schizophrenia: theory and practice. Psychiatric Clinics of North America, 9:165-182.

Falloon, I.R.H.; and Pederson, J. (1985). Family management in the prevention of morbidity of schizophrenia: the adjustment of the family unit. The British Journal of Psychiatry, 146:179-188

Falloon, I.R.H.; and Others. (1985). Family management of schizophrenia. London: The Johns Hopkins University Press.

Ferris, P.A.; and Marshall, C.A. (1987). A model project for families of the chronically mentally ill. Social Work, 32:110-114.

Glass, G.V.; and Hopkins, K.D. (1984). Statistical methods in education and psychology. Englewood Cliffs: Prentice Hall Inc.

Goldstein, M.J. ed. (1986). Family involvement in the treatment of schizophrenia. Washington, D.C.: American Psychiatric Press, Inc.

Goldstein, M.J.; and Kopeiken, H.S. (1981). Short and long-term effects of combining drug and family therapy. In: Goldstein, M.J. ed. New developments in interventions with families of schizophrenics. London: Jossey-Bass Publisher.

Goldstein, M.J.; Rodnick, E.H.; Evans, J.T.; Maz, P.R.A.; and Steinberg, M.R. (1978). Drug and family therapy in the aftercare treatment of acute schizophrenia. Archives of General Psychiatry, 25:169-177.

Haley, J. (1971). Changing families, a family therapy reader. New York: Grune and Stratton Inc.

Harding, C.M.; Zubin, J.; Strauss J.S. (1987). Chronicity in schizophrfenia: Ffact, partial fact, or artifact. Hospital and Community Psychiatry, 38:477-486.

Hatfield, A.B. (1978). Psychological costs of schizophrenia to the family. Social Work, September 355-359.

Hogarty, G.E.; Anderson, C.M.; Reiss, D.J.; Kornblith, S.J.; Greenwald, D.P.; Javna, C.D.; and Madonia, M. J. (1986). Family psychoeducation, social skills training and maintenance chemotherapy in the aftercare treatment of schizophrenia. Archives of General Psychiatry, 43:633-642.

Jablensky, A. (1988). Epidemiology of schizophrenia. in Bebbington and McGuffin eds. Schizophrenia, the major issues. Oxford: Heinemann Professional Publishing.

Johnson, D.A.W. (1988). Drug treatment of schizophrenia. in Bebbington and McGuffin, eds., Schizophrenia, the major issues. Oxford: Heinemann Professional Publishing.

Kane, J. ed. (1984). Drug maintenance strategies in schizophrenia. Washington D.C.: American Psychiatric Press, Inc.

Kinney, H. (1985). Utilization of psychoeducational intervention in rural health programs. Journal of Rural Community Psychology, 6(2):45-51.

Korchin, S.J. (1976). Modern clinical psychology. New York: Basic Books.

Kottgen, C.; Sonnichsen, I.; Mollenhauer, K.; and Jurth, R. (1984). Group therapy with the families of schizophrenic patients: results of the Hamburg Camberwell Family Interviews study. International Journal of Family Psychiatry, 5:83-94.

Kreisman, D.E., Simmens, S.J., and Joy, V.D. (1979). Deinstitutionalization and the family's well-being. Family Relations, 32:41-46.

Kuipers, L. and Bebbington, P. (1985). Relatives as a resource in the management of functional illness. British Journal of Psychiatry, 141:121-134.

Laing, R.D. (1959). The divided self. Harmondswork, England: Penguin Books.

Lamb, R.H.; and Oliphant, M.E. (1978). Schizophrenia through the eyes of families. Hospital and Community Psychiatry, 29:803-806.

Lantos, P.L. (1988). The neuropathology of schizophrenia: a critical review of recent work. in Bebbington and McGuffin, eds., Schizophrenia, the major issues. Oxford: Heinemann Professional Publishing.

Leff, J.P.; Kuipers, L.; Berkowitz, R.; and Sturgeon, D. (1985). Toward an interpersonal problem solving therapy for schizophrenics and their families. in John Strauss, ed. The psychotherapy of schizophrenia. New York: Plenum Medical Book Company.

Liberman, R.P.; Falloon, I.R.H.; and Wallace, C.J. (1984). Social skills training with relapsing schizophrenics. Behavior Modification, 8:155-179.

Lieberman, J.; and Kane, J. eds. (1986). Predictors of relapse in schizophrenia. Washington D.C.: American Psychiatric Press, Inc.

MacCarthy, B.; Helmsley, D.R.; and Kuipers, L. (1986). Unpredictability as a correlate of expressed emotion in the relatives of schizophrenics. British Journal of Psychiatry, 148:727-731.

Mackay, A.V. (1988). A clinician's view of research. in Bebbington and McGuffin, eds. Schizophrenia, the major issues. Oxford: Heinemann Professional Publishing.

McGill, C.W.; and Lee, E. (1986). Family psychoeducational intervention in the treatment of schizophrenia. Bulletin of the Menninger Clinic, 50:269-286.

McGuffin, P. (1988). Genetics of schizophrenia. in Bebbington and McGuffin, eds., Schizophrenia, the major issues. Oxford: Heinemann Professional Publishing.

Miller, I.W.; Kabacoff, R.I.; Keitner, G.I.; and Epstein, N.B. (1986). Family functioning in the families of psychiatric patients Comprehensive Psychiatry, 27:302-312

Mintz, L.I.; Liberman, R.P.; Miklowitz, D.J.; and Mintz, J. (1987). Expressed emotion: a call for partnership among relatives, patients, and professionals. Schizophrenia Bulletin, 13:227-235.

Morrison, R.L.; and Wixted, J. (1989). Social skills training. in Bellack A.S. ed. A clinical guide for the treatment of schizophrenia. London: Plenum Press.

Norüsis, M. (1988). The spss guide to data analysis for spssx. Chicago: SPSS Inc.

Phares, E.J. (1984). Clinical psychology: concepts, methods, and profession. Chicago: The Dorsey Press..

Platman, S.R. (1983). Family caretaking and expressed emotion: an evaluation. Hospital and Community Psychiatry, 34:921-925.

Reiss, D.J. (1988). Psychoeducational family treatment of schizophrenia: dealing with the slowness of change. The International Journal of Mental Health, 17:65-74.

Schultz, P.M.; Hamer, R.; Resnich, R.J.; and Goldberg, S.C. (1985). The impact of borderline and schizotypal personality disorders on patients and their families. Hospital and Community Psychiatry, 36:879-881.

Shackleton V.; and Fletcher C. (1984). Individual differences, theories and applications. London: Methuen.

Smith, J., andBirchwood, M. (1990). Relatives and patients as partners in the management of schizophrenia. British Journal of Psychiatry, 156:654-660.

Steinglass, P. (1987). Psychoeducational family therapy for schizophrenia: a review essay. Psychiatry, 50:14-23.

Smith, I.J. (1986). Interventions with families of schizophrenic inpatients. Psychiatric Journal of the University of Ottawa, 11:82-85.

Smith, J.V.; and Birchwood, M.J. (1987). Specific and non-specific effects of educational intervention with families living with a schizophrenic relative. British Journal of Psychiatry, 150:645-653.

Strachan, A.M.; Leff, J.P.; Goldstein, M.J.; and Doane, J.A. (1986). Emotional attitudes and direct communication in the families of schizophrenics. British Journal of Psychiatry, 149:279-287.

Tarrier, N; Barrowclough, C.; Vaughn, C.; Bamrah, J.S.; Porceddu, K.; Watts, S.; and Freeman, H. (1988). The community management of schizophrenia. British Journal of Psychiatry, 153:532-542.

Thomas, L. (1979). Medical lessons from history. In L. Thomas, The Medusa and the Snail. Viking Press.

Torrey, Fuller E. (1987). Prevalence studies in schizophrenia. British Journal of Psychiatry, 150:598-608.

Waring, E.M.; Carver, C.; Moran, P.; and Lefcor, D.H. (1986). Family therapy and schizophrenia: recent developments. Canadian Journal of Psychiatry, 31:154-160.

Zubin, J. (1987). Possible implications of the vulnerability hypothesis for the psychosocial management of schizophrenia. in J. Strauss, ed. Psychosocial Treatment of Schizophrenia. Bern: Hans Huber Publisher.